The Builder.

No. CLXXII.

SATURDAY, MAY 23, 1846.

SCAFFOLDING has been erected on the triumphal arch at Hyde Park Corner, and an enclosure formed at the foot of it, preparatory to the sacrificial act of placing thereon a monstrous pedestal, and Mr. Wyatt's colossal figure of the Duke of Wellington. In July last, and long previously, we pointed out the absurdity of this arrangement,* the injurious effect it would have upon the archway, and the inappropriateness of the situation, leaving the archway out of the question. At this, the last moment, we feel it necessary to make one more effort to prevent the contemplated destruction.

We appeal to Lord Canning, within whose jurisdiction it is, and beseech him to interfere in favour of this other "finest site," and not allow it to be wilfully injured, by a course, too, which will deprive another part of the metropolis of a monument. Surely we have not so many monuments that we can afford to sacrifice one and lose a second? And yet unquestionably this will be the result of the present proceeding; — the archway will be degraded into a pedestal, and the group will be placed too far from the eye to be properly seen. The archway is of itself complete. If any figures be added, they should of course be accessorial, not dominant,—they should be the adornments of the edifice, and not its destruction.

The effect of a figure of the intended size must have been seen (by those who needed such demonstration), when the wooden effigy was set up on the archway in 1839, to the special wonderment of the horses and the crows. Now that the statue is finished, a mounted life-guardsman (says a contemporary, in a tone of gratulation), can ride between the legs of the horse; and we have heard it remarked, as a matter of boast, by one who is interested in the testimonial, that the group is quite five feet longer than it was at first proposed to be! An additional reason why it should not be placed on the top of the archway.

In our previous article we expressed an opinion, notwithstanding assertions to the contrary, that Mr. Decimus Burton, the architect of the gateway, could not view the proposition favourably; that though he might have said to Mr. Wyatt (as was asserted), long before the Wellington testimonial was proposed, that figures were essential to the finish of his structure, he meant figures of a very different size and character from that now threatened. Since then we have learnt, and can state positively, that Mr. Burton has the strongest objection possible, against placing the group in question on the archway (and well he may have), and that he is taking no part whatever in the alteration proposed to be made in the upper part of the structure, to prepare it to receive the pedestal about to be built on it,—a pedestal, be it remarked here, of brick faced with stone, five and twenty feet long, and eleven feet wide.

Mr. Burton, through the mildness which characterizes him, has not expressed this opinion so loudly, and so publicly, as he ought to have done; but we do hope, for the sake of the public, that he will wave his accustomed gentleness, and protest in the strongest manner against the unwise course about to be taken. He owes this, too, to himself; for an opinion prevails very generally, that he is a party to the proceedings, and this has induced many to be silent who would otherwise have spoken. The result will unquestionably rest on his shoulders.

The duke himself, we may be quite certain, cannot desire to have the figure opposite his front windows—harassed, as he is, by Achilles in his rear: the architect, as we have said, strongly objects to it; and that portion of the public who have as yet thought about the matter, violently reprobate it. To please whom, then, is it, that this violation of good taste, and waste of public money, are to be perpetrated?

Of the statue itself we can say nothing, not having seen it; moreover we have a sufficiently good opinion of Mr. Wyatt's abilities to believe that it will be very satisfactory, and would prove an adornment to one of many fitting spots in the metropolis that might be pointed out, placed on an appropriate pedestal, such as Mr. Burton, we understand, has himself proposed and submitted a model of, to the office of works. Our objection applies entirely to the proposed situation of it, and we respectfully reiterate an appeal to Lord Canning, and beg him to fortify himself with the opinion of competent disinterested parties, before he suffers any further steps to be taken, in the unwise direction contemplated.

* See p. 325, Vol. III.

A more satisfactory proof could not be adduced of the increased amount of interest in art, now manifested by the public, than the lengthened and able notices of the present Academy exhibition, which have appeared in the daily papers. Time was, when the smallest type and a narrow space sufficed to tell the world what to look at, and what admire, on the walls of the old rooms at Somerset House; whereas now, the criticisms appear in largest character, and are "to be continued" from morning to morning. The periodical press is a reflect of public opinion: if more space be devoted to art, it is because the public will read more about art, and, in fact, demand it. The press may go much further than they do: they *will* go much further before long; and even the reporters of the House of Commons, who now shut up their books when any thing concerning art, or literature, is talked about, will learn there is a public anxious to hear of these, and will find themselves compelled to note it. The ignorance which has prevailed in England as to the scope of art, its purpose, and real power, is deplorable. We say *has* prevailed, but ought to say, *does* prevail, notwithstanding the improvement which has been effected by the establishment of Art-Unions; and we would point for examples, to the highest circles equally with the lower. Of this hereafter.

CHURCH FOR SEAMEN OF THE PORT OF LONDON.—The first stone of this church, designed by Mr. H. Roberts, was laid by Prince Albert on the 11th inst. The style is Early English; the estimated cost 9,000*l*. We learn that the external length of the church is sixty-nine feet; the width, fifty-three feet; the height, to the plate of the clerestory roof, thirty-five feet; and to the under-side of ridge, fifty-two feet; the entire height of the tower and spire will be one hundred feet. The timbers of the roof are to be open, and, with the whole of the wood fittings, will be stained dark oak. The seats will be entirely free, of open benches, accommodating 600 on the ground-floor, and 200 in the two side galleries. There will be no gallery at the west-end of the church, the organ being placed in a recess within the tower.

THE ARCHITECTURAL ROOM AT THE ROYAL ACADEMY.

Rooms are opened and pictures are hung at the exhibition, which is assumed to represent the state of art in England, less for the immediate benefit of the arts themselves, than the gain in visitors' shillings. Consequently, the first object is to cover the walls; the nature of the works is of secondary importance. Large Paintings are on the level of the eye, whilst architectural drawings are next the floor, or above the doorway. The visitor passes in at one door of the architectural room, and out at the other, saying, "Oh! I hate these things," as we heard the other day; the architect-academicians are usually absent, so it can hardly be wondered at, that architects in general should omit to send, and the interest of the room degenerate. In our former notice,* we briefly adverted to points in which alteration was desirable, and if we now allude to the bad system of hanging, the admixture of oil pictures, and other matters, it is because we could not, consistently with our duty, allow any year to pass without recording our opinion as to the necessity for improvement.

We cannot call to mind any exhibition, in which there have been so few drawings of buildings in progress, or to be erected. Views of cathedrals and abbeys, or of Greek and Roman temples, reduce our critical labours considerably, but remind us of many subjects, which should occupy their places.—But we give the praise it merits to the "Interior of the Upper Chapel, Benedetto, Subiaco" (1312), by D. Wyatt, a drawing of an interesting building, affording some scope for colour, and artistic treatment. The "West Doorway, Rochester Cathedral" (1242), by S. Read, is also not without merit. "An Elizabethan Mansion, at Ipswich, date 1568," by T. M. Baynes (1208), is an interesting example, having a projecting story and roof, pilasters and festoons, and bow windows; in general character being very similar to the Queen's Palace at Greenwich. No. 1233, "Bishop Longland's Chapel, Lincoln Cathedral," by C. Creeke, is nicely drawn in outline. "The Town Hall, Leominster" (1276), by J. Clayton, is an interesting example of the half-timbered edifices, which we may also say of "Garratt Hall, Manchester" (1324); but the buildings in the latter view are *not* in all respects "represented as they appeared, July, 1837."

The views of the quadrangle of the Royal Exchange, and of the staircase in the Conservative Club, by F. Sang, represent the polychromatic decorations in those buildings, but might be intended for working drawings, so little do they aim at the effect, which the interiors themselves might be supposed to present. In "A Library," by W. W. Deane (1160), the polychromy is better treated, and seems in all respects better composed; the columns, and the semi-circular recess at the end are also well arranged. Of interiors generally, there are fewer than usual. Mr. Derick exhibits one of "the Episcopal Chapel now erecting at Clonbar, Mayo;" and there is one of the church at Seacroft, near Leeds, by T. Hellyer, both commendable productions. The "Music Hall and Class Rooms for Mr. Hullah's Singing School," by W. Wesmacott (1355), is Gothic in design, and not very effective.

Mr. Hopper's old design for the Nelson Monument (1171) is a monopteral edifice, consisting of a basement, and rostral columns, nine in number (so we counted them), and apparently was intended for one end of Trafalgar-square. Mr. Railton troubles us with his Nelson Column (1313) as it *will* one of these days appear, *when* completed. The latter architect shows us a view of "Riseholme Hall, as enlarged and adapted for the Bishop of Lincoln." It is just one of those plain square mansions, of which there are so many, some 20 or 30 years old, and which make us feel that we have advanced greatly in our villa architecture. But as it is not entirely a new building, we are not inclined to make this a complaint against the architect. 1200, called in the catalogue, "Design for a Mansion," by H. H. Burnell, though picturesque in outline, has too much the character of a public or collegiate building to be what its name signifies. Mr. Lamb's drawing (1210) of a "church porch," has the appearance of an accurate delineation from an old example. The "Gothic Design for a Town Hall and Public Assembly Room,"

* Vide *ante*, p. 217.

&c., by C. Burton (1214), will never be anything more than a design. Its decoration is carried to excess, and its execution would be an impossibility. The old carter in the foreground, astonished though he appear, could not feel more surprised at the enormous mass of masonry hanging in the air, than, we dare say, did the plain, sober people "in the west of England." W. A. Papworth, in his "Design for a Way-side Railway Station" (1216), has arranged the projecting gables for timber and plaster, and their supports are apparent. This design has the ornamented timbers and verge-boards of the style. The *hip-knobs* seem too bulky. In Mr. Barr's drawing, "Steeples of gothic churches" (1218), he seems to have followed one model of the broach spire exclusively. Mr. Allom, besides the works previously mentioned, exhibits a "bird's-eye view of a design for the Clifton Union Workhouse" (1215), one of his clever drawings, "a view of the plan for laying out the manor of Stoke Damerel, Devonport" (1343), and a house now erecting in New Zealand (1227). Two pen and ink drawings, designs for churches (1231 and 1224), are ascribed to different hands, but are apparently by one. Mr. S. S. Teulon has a drawing of "North Creake Rectory," erected by him. In number 1260, "view of a church, designed by G. Alexander," the tower and spire deserve great praise. "Street architecture and astylar decorations" (1275), by W. H. Leeds, reminds us of two drawings by the same architect last year. It shews a commendable desire to leave the beaten track. The "design for the Ipswich Railway Station (1323), which obtained the second premium," by Heneker and Lawford, is clever and appropriate; and "Healey Church, now erecting" (1329), by E. B. Lamb, is one of the best designs in the exhibition. Some designs for lodges, by W. Haywood, are good. E. C. Sayer has drawn out "Sir Christopher Wren's first design for St. Paul's Cathedral from the model." The result will, perhaps, disappoint many, no attempt having been made to supply the elaborate decorations which the present building has, and the domes not being sufficiently elevated. The portico, however, is imposing. The model has, we believe, been strictly adhered to.—Amongst the models is one of the "Martyr's Memorial," recently erected at Oxford, and another of Mr. Poynter's Church at Westminster. The steam-boat pier, by H. H. Burnell, may be noticed, for an attempt to do away with the present floating barges. The plan seems practicable.

PROFESSOR WILLIS ON ECCLESIASTICAL ARCHITECTURE.

On Tuesday, the 12th inst., Professor Willis described the arrangement of the Greek church from that of St. Sophia, at Constantinople. This building, erected by Justinian, and dedicated to the Wisdom of the Deity, differed greatly in its plan and construction from the basilicas. These structures were roofed with open timbers, whilst the Byzantine church was domed over in light brickwork. That characteristic was united with peculiarities of plan, mainly attributable to the influence of ritual, and the curious combination of forms. The main portion of the plan enclosed a parallelogram, varied in outline by apses. The centre portion, which was square, was united east and west to large apses; from the middle of one of these projected a smaller apse, as a place for the altar, whilst a square projection occupied a corresponding place at the other end of the interior. One on each side of these projections were other apses, covered, as in the former case, with semi-domes. In front of the building was an atrium, as in the old basilica of St. Peter, and in the church of St. Clement, at Rome. It had a fountain in the centre; and might, the outline excepted, be likened to the porticoes in front of the modern St. Peter's. It was similar to the cloister of a Gothic cathedral, but was not a private but a public place.

The church had aisles, which were much wider than those of the basilica. The square centre, surmounted by a dome, was enclosed by four great arches. The north and south arches—though it was not at first apparent—were smaller in span than the others, and were filled by a wall pierced with openings. There were arches in two tiers, opening, the lower into the side aisles, and the upper into apartments resembling those below. The upper gallery, occupying the place of the triforium in Gothic churches, differed from it in being precisely similar to the aisles below. These upper galleries were devoted to the women, and the lower galleries to the men. The north and south arches themselves were filled, each with a large window, or rather, a wall pierced with arched openings, which were glazed with stained glass. The aisles were filled with similar *mullioned* windows, from which, possibly, the idea of the Gothic window was taken.

The professor pointed out the different parts of the building from the model before him, and explained that the construction of the vaulting was borrowed from the examples at Rome, in the baths and the "Temple of Peace." The domes were filled with small apertures, which admitted the light. The church of St. Sophia had been the model for the Turkish mosques. He also pointed out the enormous counter-forts to the eastern and western arches. The history of the building might be gained from Procopius, and the Byzantine churches had been carefully illustrated by M. Couchaud.* The design was attributed to two architects, and it had been said that the emperor was himself the architect. Justinian expended upon it all his resources, and when he entered it, at its completion, exclaimed, "I have vanquished thee, O Solomon." The structure, however, proved too gigantic for the skill of the time; the foundations settled, and other serious failures took place, of which we had no distinct account, until, at length, an earthquake threw down the great dome. At the reconstruction great changes were made, which the professor considered were reducing the span of the north and south arches, and building the great buttresses to those of the east and west. He thought it was probable, also, that the church had previously a central transept.—The area was divided into three principal portions. The sanctuary, removed from the position it held in the basilica, occupied the *eastern* apse. The bishop's throne, and presbyters' seats, had their usual arrangement in the central apse, which had three windows, in accordance with a vision which appeared to Justinian, and being probably the origin of the eastern triplet. The two smaller apses were, one for the table of prothesis, and the other for the books and sacred utensils. At a subsequent period in the Latin church, these apses were found so convenient for the additional altars, that they were employed in that manner, and their number often increased; the table of prothesis being diminished to a projecting shelf in the choir. The divisions of the area were made by screens, and the only parts occupied by the congregation were the galleries, and the western end. The great space allotted to those engaged in the celebration of the service, was necessary, from the number of priests, singers, and others, of whom there were in all 525 individuals.

The professor said, that the Byzantine style had been supposed to have exerted a vast influence upon the style of western Europe, but the difference between the two was so great, that he thought that influence could not have been so important.—He then noticed the church of the nativity at Bethlehem, erected over a grotto, supposed to be the site of the Saviour's birth. The grotto was under ground, and great part of it was excavated subsequent to the building of the church. The high altar stood immediately over the presumed site of the manger. The church was "transverse triapsal," or having its second and third apses at the ends of the transepts, instead of parallel with the great apse, as in the other instance, called "parallel triapsal." The plan of the church had been much extended, and the professor demonstrated, from the position of the altar, and the general arrangement of basilicas, what was probably the original form.—He then alluded to another class of churches, found in Germany and other parts of Europe, having an apse at each end, which seemed to belong to a period of transition from the earlier system, as regarded the position of the altar, to that with which we are familiar. This peculiarity he illustrated by a plan of the monastery of St. Gall, in Switzerland, erected during the 9th century, taken from the drawing which still exists on parchment in the monastic library. There are altars at each end, the eastern choir having the prolonged outline, common at a later date. Our readers may see a plan of the church in the number of the *Ecclesiologist* for March, in the present year, to which we referred at the time.

* "Choix d'Eglises Byzantines en Grèce," par A. Couchaud. Paris. 1832.

REGULATIONS FOR THE CONSTRUCTION OF SEWERS.

WESTMINSTER COMMISSION.

Drainage of Courts and Alleys.

At a Special Meeting of the Westminster Court of Sewers, on the 12th instant, Mr. Leslie in the chair, the following Regulations were unanimously agreed to:—

1. That all persons obtaining leave of the court to construct any length of sewer, do conform to the following regulations, as the conditions on which such leave is granted.

2. That all persons applying for leave to build a sewer, do present with the petition (which is to be in the form provided by the court) a plan of the ground and buildings which such sewer is intended to drain. A transverse section of the road-way, shewing the depth of the lower floors of the buildings below the said road-way, must be drawn and figured on the plan. A strong red mark is also to be drawn on the plan, shewing the line of the sewer for which application is made. The situation, level, and current of all sewers will be regulated by the court. Whenever the lower floors of buildings are too low to be properly drained, no sewer or drain will be allowed to be made for such premises.

3. That leave to build a sewer, and the drains connected therewith, shall continue in force for six months; and in case the work is not commenced within that period, it must not be done without a renewal of the leave.

4. That all sewers, and works connected therewith, be built respectively in accordance with the subjoined plans and sections.

5. That care be taken to avoid all angles, either in changing the direction of a sewer, or in forming junctions therewith; and that, in all cases, such junctions be formed by means of a curve, with a radius as long as the locality will allow. The fall along a curved length, must be treble that along a similar length of the straight part.

6. That all the bricks used be good, sound, square, hard, and well-burnt stocks or paviors. Bricks of an inferior quality are not on any account to be used, and wherever such are found, the works will be suspended until the bad bricks are removed.

7. That the mortar be composed of two parts of the best fresh-burned grey-stone lime, of approved quality, and five parts of the best, clean, sharp, river-sand, free from dirt and other impurities, well mixed and tempered, with such a quantity of clean water only as is sufficient to bring it to a tough and proper consistency.

8. That the cement be of approved quality, and mixed in small quantities at one time, with an equal proportion of clean sharp river sand. Should any of the composition become hard or set, it must not be re-mixed for use.

9. That the inverts be worked in cement as shewn on the sections, and the three centre-courses thereof well bonded and cemented together above ground, in blocks one foot six inches long, which must not be used within twelve hours after being put together. The bricks used with the cement must be well soaked in water.

10. That the brickwork be executed in the best manner, the bricks properly bonded, and the cross-joints of each course well rubbed-up. The bricks must also be laid evenly and uniformly, to the curvatures of the moulds and centres, in neat, close, and regular joints, not exceeding a quarter of an inch in thickness at the interior surface, and the joints are to be smoothed or struck full and flush with the face of the work.

11. That the ground be excavated of such length at one time, as shall be deemed most proper by the surveyor or clerk of the works of the court, the sides of the trench being supported with suitable planking and transverse strutting, until the brickwork of the sewer is completed. The bed for the invert and sides must be excavated to the form of the exterior; but should there be any vacant space behind the brickwork, it must be made up with proper earth, soundly rammed, as the work pro-

ceeds; the trench must then be filled up with regular layers of ground, not more than one foot thick at a time, each of which must be thoroughly punned down.

12. That all sewers or drains, whether public or private, which may be met with in building any sewer, be preserved and properly connected therewith, in such manner as the surveyor of the court shall direct, and at the cost of the party building such new sewer. The court reserves to itself the power of allowing the junction of any sewer into any part of such new sewers, without the sanction or concurrence of any person whatever, and without any payment in consideration of such junction; but no new drains will be allowed to be inserted without the written consent of the owner of the sewer.

13. That all persons obtaining leave to build a sewer within thirty feet of adjoining property, be required to continue the line of such sewer up to such adjoining property.

14. That all persons, before commencing a sewer or drain, must apply to the person in charge of the roadway, for the purpose of arranging as to the thoroughfare and making good the roadway.

15. That the petition for any sewer must include such proper shafts and side-entrances, for examination and repairs, and gullies for carrying off the surface water, as the court shall require. The iron work will be provided by the court.

16. That all drains be connected with the sewers by means of pipes, agreeably to the (subjoined) plan and section. Specimens to be seen at the office.

17. That every new sewer, and all works connected therewith, shall be maintained, kept in repair, and upheld at the expense of the petitioner, until the street or way over such sewer shall be completed to the satisfaction of the court.

18. That the whole risk and charge of building any sewer, side-entrance, drain, gully, or other work, including the watching, lighting, and fencing, as also the breaking-up or making good the foot or carriage-way, and all works occasioned by the building of such sewer, side-entrance, drain, gully, or other work, together with every responsibility, shall be borne by the party on whose petition the leave was granted.

19. That no building or erection of any kind shall be built in, over, or upon any sewer, and not (without the special permission of the court), nearer to the side wall thereof than three feet.

20. That no sewer be made through a burial ground; nor, without special permission, in any other situation than along a public way.

21. That this court will not maintain fences at the sides of sewers.

22. That, previous to the commencement of any sewer, at least two clear days' notice thereof be given at the Sewers' Office.

23. That a distinct and separate drain be laid from each house, including the offices. All persons breaking this regulation will subject themselves to a fine, and the drain will be cut off from the sewer.

24. That the officers have strict orders to see that all works are carried out in conformity to the regulations and orders of court, and subjoined plans and sections, and to stop all works in any way departing therefrom, by leaving a written or printed notice, and report the same to the court without delay.

The following Report from the Surveyor, on drainage of courts and alleys, was then read:—

As ordered by the court of the 1st May, 1846, I beg to present a report, accompanied by plans and sections, on the drainage of courts and alleys, as follows:—

Within the limits of this commission, there is a large number of courts and alleys entirely without underground drainage. The houses in these localities drain on the surface, and into cesspools which have no overflow drains; and, in consequence, these places are almost always covered with filth, and the smells are very offensive.

There are, however, many courts and alleys that have sewers, but are, nevertheless, very badly and improperly drained; many of the sewers being choked up with soil, and in a very dilapidated and ruinous condition, and in consequence of their intricate directions, improper sizes, fall, and form (being flat bottomed), they are very little better than cesspools, for they often require to be broken into for the purpose of clearing out the soil, which occasions much annoyance and expense; and the smell emitted from the soil while it is depositing and accumulating is very bad; altogether they form a source of great trouble.

Now all the courts and alleys that are without sewers and drains, as well as those places that have sewers, but which are in foul condition, can be cheaply and most effectually drained. It is, therefore, in my opinion, absolutely necessary, that a cheap and proper system of sewerage should be adopted by the court for draining the localities in question. The owners of such property would then be enabled to cause sewers to be carried along these places, for properly draining the tenements; and those sewers that are inefficient, and which are under the control of the court, should be put into an efficient state, or entirely rebuilt.

But as most of the courts are very narrow, and as there are a great many vaults, areas, and cellars projecting from the houses into them, the small size, or No. 3 sewer, is much too large, and could not, in very many cases, be built along them. Moreover, large sewers are not in any way adapted or fitting for the drainage of such localities; and I am of opinion that they may be properly and effectually drained by sewers of even much smaller capacity than the No. 3 sewer, which is 3 feet 3 inches high, and 2 feet wide in the clear.

In providing for the drainage of these places, the form of the sewer at the bottom should be such, that a small quantity of water shall cause a scour along their channels, and keep them free from deposit and accumulation. Keeping in view, therefore, the hydraulic principle, that by concentrating the stream on a small area, and by contracting the channel to narrow limits, increase of velocity and power to scour is the result, I submit the accompanying sections of sewers, as best adapted for draining courts and alleys.

I propose, therefore, that three sizes of sewers should be used for that purpose.* The first is intended for courts from 300 to 450 feet long, the second from 150 to 300 feet long, and the third for places 150 feet and less in length. They should be built half brick, or 4½ inches, thick, with radiated bricks worked into blocks, (with best Roman cement), as shewn by the said sections. The average cost of such sewers would not exceed five shillings per foot run.

In lieu of using bricks for the construction of the aforegoing sewers, it is very desirable to make them of terro-metallic or iron-stone clay, or of Staffordshire fire-clay, moulded in the manner (that was) shewn. My opinion, which is strengthened by the opinions of persons of great experience in the building of sewers, and also by practical manufacturers, is, that little or no difficulty would be experienced in making pipes as represented. The advantages to be obtained by their use are, sound and quick construction, strength, durability, efficiency, and cheapness. There are many places where, in consequence of vaults, cellars, and want of depth, it would not be possible, without great difficulty and expense, to put in sewers even of the heights proposed; to obviate which, the bottom parts of the tubular sewers only may be used, covering them with strong flat tiles made of the same material, or with thick slate.

It is very desirable to provide facilities for examining the state of these sewers from time to time. I propose, therefore, that a shaft should be built at the head of the sewer in each court, and shafts at their sides; (as shewn by the plans and sections which were given). Local circumstances will determine, in most cases, where the side shafts are to be placed; and as conveniency of access to the sewers is important for examining them, and for the removal of accidental obstructions, they should be placed about 100 or 150 feet distant from each other. Or if a sewer, from where it joins a main one, to its head, be about 100 or 150 feet long, a shaft at the end thereof will be sufficient; if it be from 150 to 300 feet long, a side shaft should be constructed at about the middle of its length, and a shaft at the end; if it be from 300 to 450 feet long, two side shafts and one at the head should be built. These shafts should be covered with chequered cast iron flaps or doors, with proper locks and fastenings to them, and laid flush with the surface of the paving. Foot, or ladder irons are also intended to be inserted in the walls of the shafts.

Besides affording facilities for examining the state of the sewers, the *end* shafts can be made to serve a very important purpose, namely, that of holding water, to be supplied from the water companies' mains, and having a proper ball-cock with waste-pipe to regulate the supply, for keeping these sewers well washed or flushed out. The plan consists in fixing against the heads of the sewers in the shafts, strong water-tight flaps, which may be lifted up (if required) to allow a man to crawl or look into the sewers. Near to the bottom of this flap a circular aperture should be made, of the same radius as the bottom of the sewer, covered with an iron valve, to be hung by a link and staples, so as to swing freely. This valve could be opened from above by a chain fastened to it. When the shaft or tank, which should be built and rendered inside with Roman cement, is full of water, and the valve is opened, the rush and force of the stream through the aperture and along the sewer would be such, that it would scour and carry away any deposit or accumulation. This process can be performed once a week at most, and would keep the sewers perfectly clear of all obstructions, and free from smells, for no smell arises from those sewers in which the currents are powerful enough to prevent the soil from depositing. The cost of the water for the supply of the tank for each court or alley, would be about the same as that for an ordinary cistern, or from twenty to thirty shillings per annum. Small sized grates with narrow bars and openings, about a quarter of an inch wide, should also be laid in the pavements, as shewn, with small drains communicating with the sewers, for carrying off the surface water.

Having maturely considered the system for the drainage of courts and alleys, as laid down in this report, and the principles connected with it, and having taken the opinions of eminent engineers as to its practicability and efficiency, I have no hesitation in saying that, should the court think it worthy of adoption, it would be found cheap, durable, and efficient, and a great boon to the inhabitants of the wretched and miserable abodes in courts and alleys.

JOHN PHILLIPS.

. It was resolved unanimously, that the report be approved and adopted; the limitation respecting the lengths of the courts being considered as a guide only, and not as a precise direction.

The surveyor reported, that he had directed several of the sewers in alleys to be opened, that the court might have the opportunity of seeing the horrible state in which they were. The court resolved unanimously, that immediate steps be taken, and the surveyor be authorized to try the effect of his new sewers in a few courts and alleys.

The court then ordered an advertisement to be prepared immediately on the sample-brick being ready, for 30,000 radiating bricks for the new sewers for courts and alleys.

* The drawings submitted shewed No. 1 to be 3 ft. 3 in. by 1 ft. 9 in.; No. 2, 2 ft. 9 in. by 1 ft. 6 in.; and No. 3, 2 ft. 3 in. by 1 ft. 3 in.,—all of the egg shape.

WASTE OF WATER POWER IN IRELAND.—In Lancashire, every available rivulet is caught hold of. The little current which passes by Bolton and Manchester, Dr. Kane somewhat quaintly styles, "the hardest worked stream probably in the world;" in a fall of 900 feet, not less than 800 are appropriated to the use of mills. Now, the Shannon (whose total basin amounts to the prodigious area of 4,544 square miles) falls 147 feet from Lough Allen to Limerick, the last fifteen miles from Killaloe presenting a difference of level of not less than 97 feet! The total continuous power above Killaloe, calculated from the level of basin, is 4,717 horses power; that from Killaloe to Limerick something above 350 horses power for every foot of fall, making for 97 feet the immense force of 33,950 horses power, these added together *giving a force in uninterrupted action day and night, at every moment of the year, of 38,667 horses power!* Yet with the exception of a few corn-mills along the *trajet* of the river, this invaluable force is allowed day after day to go to waste.—*Dublin University Magazine.*

ARCHITECTURAL QUERIES.

MEETING AT METZ.

Dr. Bromet has favoured us with a programme of the questions which will be submitted to the French Archæological Congress, to be held this year at Metz, commencing on the 1st of June, already alluded to in The Builder. We print such of them as are generally suggestive.—The readiest way to Metz is from Dover to Ostend, and thence by rail to Namur, whence by diligence to Luxemburg and Metz, in three or four days from London.

1. Is it not possible to ascertain in churches of pointed architecture, the numerical relation of their several portions, and a geometrical deduction of their architectonic forms?

2. Do not the ecclesiastical monuments of the middle ages prove the existence of an architectonic hierarchy by which all cathedrals, and abbatial and parochial churches, and even private chapels, were severally built according to certain dispositions and dimensions?

3. Is not the pointed or *ogival* style better indicated by the presence of pinnacles than by pointed arches?

4. May we not trace the progress of the styles of Gothic architecture by the technical terms employed in architectural documents of different epochs?

5. What are the distinctive characters between the pointed styles of France and those of Germany? and is not the cathedral at Metz an example of transition between two varieties of that style?

6. Was there not in each of the dioceses of Metz, Trèves, Strasbourg, and Verdun, a special architectonic school? and if so, what were their distinctive characters?

7. What were the monuments which served as the prototypes of those churches with a choir at each end, so frequently met with in Germany?

8. If, as supposed, there was some absolute rule for building churches due east and west, how can we explain the numerous exceptions to such rule observable in Lorraine and about Metz?

9. What is the origin of the little gallery so commonly found on the outside of Germano-Romanesque churches?

10. Were not the masonic lodges, which are sometimes found in the close vicinity of cathedrals, dependent on cathedral government, and were the masters of such lodges priests or laymen?

11. In the architectonic decoration of Gothic churches, should not the disposition of their statuary be under the architect's control, and considered as an integral part of his original design?

12. What kind of pavement was employed in the civil and ecclesiastical edifices of the middle ages?

13. What were the innovations in castellated buildings brought into western Europe after the first crusades?

14. Whether the houses of towns and villages of ancient times were not often built after the form of the large mansions in their vicinity?

15. What changes as to style did edifices built of wood undergo, and what are the analogies or differences of them and the styles of stone buildings?

16. What is now the most expedient form of church-building, whether considered artistically or economically?

17. What is the most fitting style of decoration for churches in the pointed style of architecture?

18. In what cases may we venture to repair ancient monuments, and according to what general rules should such repairs be conducted?

19. Must we admit as an axiom that ecclesiastical buildings should not in any way be washed over with colour, considering that occasionally the nature of their materials require some uniform tint?

20. What system should be adopted in newly paving such churches as have their old pavements so worn as absolutely to demand renewal?

21. In what proportion, and to what kind of edifices should be restricted the employment of coloured glass as church ornament?

The Strike.—According to the provincial journals, the strike is virtually at an end. Its disastrous effects will be felt for a long time to come.

THE ART-UNION QUESTION.

The final consideration of Mr. Wyse's bill is again postponed for a fortnight. A number of petitions have been forwarded to members of the two Houses for presentation, from various provincial bodies, including—The Royal Manchester Institution; the Manchester Association for the Advancement of the Fine Arts; the inhabitants of Reading, Macclesfield, Liverpool, Ashbourne (Derbyshire), Faversham, Southampton, Warrington, Darlington, Bury St. Edmunds, Fakenham, Lynn, and Leeds. They are all numerously signed by the principal inhabitants, including the clergy.

We extract the following remarks from an anonymous pamphlet on the subject, which has been recently circulated.

"It has been said, these societies encourage low art; this is not the case; they do exactly that which is wanting in the present state of society—lead the young aspirant on in his ambitious career, by purchasing some of the best pictures of ten, twenty, and thirty pounds value; most of which would probably be otherwise returned from the exhibitions to the poor young artist; to his mortification, and for lack of funds, often to his great distress also, if not to the necessity of abandoning the pursuit he has chosen and loves. These societies, therefore, encourage young merit, but not low art, in spending a portion of their funds in pictures of small price; and let it be asked, which of our present or past greatest artists, when young, have not been grateful to a purchaser who would give ten pounds or less for their works, the best their talents could then produce? The more numerous, and larger sums expended, go to reward maturer and matured art."

"The following quotation from an early letter of the late Sir Thomas Lawrence will illustrate the foregoing remarks; it would be useless to add a score more from other eminent artists, for—"*hoc genus omne:*"—

"Mr. Lawrence presents his respects to Lord George Lenox . . . . . Mr. L. has the honour of acquainting Lord George Lenox, that on the first week of next May, he raises the price of his pictures from fifteen to twenty guineas; but as he conceives himself to be under many obligations to his lordship, he begs to be *allowed* the pleasure of painting any of his family, or friends, that are for himself, at the original price that his lordship paid him, which he believes was ten guineas.

"He has the honour to be, Lord George Lenox's much obliged and most obedient servant,

"T. Lawrence.

"Jermyn-street, March 18th,"—(1787 or 88.)

"The Right Honourable Lord George Lenox,

"Stoke, near Chichester, Sussex."

"Has the Chancellor of the Exchequer used this expresssion, *or to its exact effect?*—'You won't give me a lottery, by which I might benefit the revenue. Grant me that, and you may have as many Acts to establish art-unions as you like!' If so, he is not influenced by any moral sentiment in his present opinion respecting them."

"The chancellor of the Exchequer, to a deputation which waited on Sir Robert Peel, observed that he could not see why the cultivators of the fine arts should be more encouraged than makers of chairs and tables, a deputation from whom had just then been with him to argue the advantage it would be to their business, if they were allowed, by Parliament, to dispose of their furniture by lottery; and he could see no difference whatever between art-unions and makers of chairs and tables, that artists should be encouraged any more than these or other tradesmen? Now the Chancellor of the Exchequer may be a very clever calculator—he may know that ten chairs and ten tables make twenty pieces of furniture, or that ten pictures and ten pieces of sculpture make as many; but if he can see no difference between a chair and a statue, or a table and a picture, it is not very proper he should be allowed to offer another opinion on the subject of art."

Railway Speculation.—"What have you cleared by your railway speculation? said a gentleman, the other day, to one who had largely indulged his mania for scrip. "Cleared!" exclaimed the other, "faith, I've cleared my pockets."

EARL DE GREY'S ENTERTAINMENT TO THE ARCHITECTS.

On Friday, the 15th instant, Earl de Grey, as president of the Institute of Architects, invited a large party of the nobility, and men distinguished in science, literature, and art, to meet the members of that body. The council had previously dined with his lordship. About ten o'clock, his Royal Highness Prince Albert arrived, and was received by the Earl and Countess de Grey, and the honorary secretaries of the Institute, and was conducted round the rooms, the tables in which displayed some of the choicest specimens of the work of our best artists. Lord de Grey's *soirées* are distinguished by the presence of the fairer portion of the aristocracy, who on this occasion shone pre-eminently.

NOTES IN THE PROVINCES.

The foundation stone of St. Paul's Church, Hull, for the immediate erection of which builders have been invited to send in contracts, will probably be laid in the beginning of June. The windows of St. James's Church have been painted at the expense of Mr. John Malam, and the building has been cleansed, repaired, and altered, and its former defective ventilation much improved, by a few additional openings in the ceiling connected with apertures in the roof, by which the heated air is said to be now entirely carried off without occasioning any draught whatever. An extensive amphitheatre has been recently erected in Paragon-street. A new market, or an extension of the old market-place, is talked of.——The Jephsonian Gardens at Leamington were formally opened on the 12th instant.——Fretherne Church has been pulled down, to make way for a more commodious edifice.——In excavating for foundations to the houses about to be erected in front of Maud's-hill-terrace, Lincoln, great numbers of stone coffins and human remains have been found. The site is that on which the battle between King Stephen and the Empress Maud was fought; and before the Reformation the churches of St. Faith, St. John, and St. Peter ad Placita, stood in the immediate vicinity. It is said that the old and decayed church of St. Benedict, Lincoln, is to be pulled down, and the parish united with that of St. Peter at Arches.——The site for a new chapel of ease for 600 persons (one-half of the kneelings to be free) has been given at Cirencester, and 2,100*l.* have been subscribed towards its endowment, besides handsome donations promised towards the building fund; 2,000*l.* more will be requisite for the completion of the design.——In the parish church of Loftus, in the North Riding, an allegorical monument to Major General Dundas has just been completed by Mr. Thomas Earle, of Hull and London.——Mr. Robert Slade, of Poole, has presented to the new church at Twillingate, Newfoundland, a couple of ornamental tablets, with the decalogue, the creed, and the Lord's Prayer, inscribed; and also the set of brass chandeliers used in the church at Poole till the introduction of gas. Poole Harbour Improvement Bill, from non-compliance with some sessional order, has been lost for the present session.——"While superintending the repairs of the town-hall at Yarmouth," says the *Ipswich Journal*, "the surveyor, on Tuesday last, thought it desirable to examine the lead and flooring on the portico, when, to his astonishment, he found the entire flooring had given way from pressure, and that the lead was supported only by the fastenings round. It will be in the recollection of many of our readers, that about five years ago a large vessel, the "Maria Soames," was launched from the yard of Mr. F. Preston, on which occasion a vast concourse of persons assembled to witness the imposing ceremony, and as many as could stand on the balcony of the portico of the town hall were admitted there. During the time, the mayor sent once or twice to see if the ceiling beneath appeared to bend or give way, not dreaming there was a vacancy of 4 or 5 feet between that and the floor above. It appears that from the great weight upon it, on the occasion above alluded to, some of the beams gave way, leaving the whole weight to be supported by the lead. Fortunately, no similar occurrence has transpired since, or we should have probably witnessed a catastrophe

more awful in its consequences than the loss of the Phœnix, or the fall of the suspension bridge."——At Eye, near Peterborough, on the 11th instant, the foundation stone of a new church was laid, in the usual form, by the bishop of the diocese.——The new church of St. John, at Wednesbury, was consecrated by the Bishop of Lichfield on the 13th instant. It consists of a lofty nave with side aisles and a detached tower (and spire, to cost 500*l.*) It is built in the style of the 13th century, and is 130 feet in length, from the west to the extreme end of the chancel; and 53 feet in width. The seats are all open, and above one-half are free and unappropriated for ever. The principal features are the coupled lancet windows in the aisles, having foliated capitals between them; also a triple lancet window at the east end of an elevated chancel, and a nave 50 feet high, with open roof and ornamental timbers. The font is in character with the church, and was presented by the architect, Mr. S. W. Dankes, of Cheltenham. The communion plate, chancel drapery, and oak chairs, harmonize with the building.——Another new stained-glass window, the gift of the Rev. E. B. Sparke, has been put up in the north transept of Ely Cathedral. The subjects are the stoning of Stephen, and the conversion of Saul. The interior of the great western tower has been thrown open, and much of the original work restored. By the removal of some masonry the zig-zag mouldings of the original arches that support the tower have been displayed.——A powerful organ has been recently presented to Holy Trinity Church, Barnstaple, by the Rev. John Scott.——The foundation stone of a new Wesleyan College was laid a few days ago in the parish of Trull. The area of the building, with its lawns and shrubberies, is to extend over a space of about six acres of land. Mr. Wilson, of Bath, is the architect; Mr. Mason, of Exeter, is the contractor, and has undertaken the whole work for little more than 5,000*l.*——Sir Isaac Lyon Goldsmid has given a piece of land at Preston, near Brighton, as the site for a new church. "It is to be wished," says our informant, "that all Christians were as liberal towards each other."——Mr. John Sillifant, of Coombe, near Crediton, has offered to give the sum of 500*l.* towards the erection of a church at Knowle, about four miles to the west of Crediton, on condition that the Crediton Church Corporation advance a sufficient sum to complete the building.——A stained glass window, by Bell, of Bristol, has been presented to St. George's Church, Tiverton, by Miss Walker, of that town. The subject is St. Andrew with the cross.——A district church in the parish of Tiverton, Devon, has originated in the zeal of an honest yeoman of the neighbourhood, who offered the land, the stone, a considerable portion of the cartage, and 200*l.* towards the work. He set the things in order, but he was not permitted to see the building commenced. His sons are treading in their father's steps: the foundations have been laid, and the building is in progress. "The Bishop of Exeter," says the *Quarterly Report of the Diocesan Architectural Society*, "in his late visitation, went to view the spot. He had previously taken great interest in the work, and he could not refrain, before those who were present, from contrasting the very humble dwelling of the chief founders, with the chaste and beautiful designs for the house of God which they were raising."——The works at the Norman Tower, at Bury, have now arrived at a critical point in their progress—the very worst fissures—those on the east side, from the second to the third tier of arches, having been laid open through the whole substance of the masonry. Before this was done, it was necessary to slip down to this level the temporary iron band (the two upper chain ties being permanently fixed), and to secure the middle jamb by chains and irons from the opposite side. The arches have now been turned afresh in Roman cement, with which material the whole of the masonry in the chasms will be worked; and when this part of the structure is restored to its pristine solidity, the formidable work of taking out the great arch may be encountered. It is remarked in the *Ipswich Journal*, that, "could it be conceived how firm and enduring a national monument of antiquity is thus being preserved, we think the good taste of many would induce them to augment the funds of the Norman Tower Committee, in order that all inharmonious obstacles to the fair exhibition of this building might be removed."——In the church at Preston-Bisset, Bucks, a piscina and brasses have been cleansed, and an arch and shelf, probably the credence table, have been discovered.——A new stained glass window has been placed in the church of Lostwithiel, in Cornwall, by Mr. William Westlake, in memory of his deceased wife.——The great Roman Catholic Chapel of Waterford, in Baron Strand-street, is supposed to be one of the largest buildings in Ireland, and is capable of accommodating 14,000 people. It was built in 1793, at an expense of 20,000*l.*, which was raised chiefly by collections of halfpence at the chapel door.

ANCIENT GLASS.

At a meeting of the Freemasons of the Church on the 12th inst., the secretary read a letter from Mr. J. Wykeham Archer, relative to the house of the poet Milton, in London, and urging the college to take steps for preserving this interesting relic from its impending fate. Some communications were also read from Mr. Wright, with regard to the present inefficient means for showing Westminster Abbey. Mr. George Isaacs then delivered a lecture "On ancient glass as applied to vessels and other domestic purposes," tracing his subject from the earliest known records, and carrying it forward to the close of the 17th century. After controverting the theory founded on a passage in the book of Job, xxxvii. 18, and shewing how glass had been confounded with the obsidian stone, so plentiful in Ethiopia, he alluded to the arts of forming and colouring glass vessels among the Egyptians, explained the nature of their manufacture, and described many of the finest known specimens in existence. Following the art through Tyre, Sidon, and Etruria, he proceeded to the period of Greek art, on which he dwelt at some length, adverting to the Portland vase, some specimens in the Bibliothéque Royale, and those exhibited at the last meeting by the Earl Cadogan, in all of which examples, it seems conclusively demonstrated that the glass was blown of two colours, viz., of deep purple coated with white, and that out of the exterior surface were carved those exquisite bas-reliefs, which, from their extraordinary delicacy and precision, have been an enigma to antiquaries of considerable authority. A wonderful specimen of Greek art, in the possession of Mr. Henly, was then described, having a series of gold figures burnt in from the interior of the vessel, and some curious historical information was given on the subject of malleable glass from Dion Cassius, Petronius, Arbiter, and Isidorus, Ibn Abd Alhokim, Neri, and many other writers. Among Roman glass, the vase of the birth of Bacchus, in Baron Lionel de Rothschild's collection, a specimen possessed by Mr. Roussel, of Paris, and other extraordinary pieces, were cited in chronological order. Nor would it be an outrageous hypothesis, observed Mr. Isaacs, to suppose that the art never became entirely extinct, but was continued to a certain extent through the middle ages down to its perfection at Murano in the 16th century. For the mediæval period, some remarkable extracts were given from old authors and chroniclers, and an explanation offered of the early grotesque vessels, called Bourrabaquins. Then followed the Vitro di Trina, frost glass, cornaline, and many other kinds, of all of which specimens were on the table.

THE PADDINGTON HOSPITAL.

Sir,—Although not in general disposed to afford an explanation in answer to anonymous critics, yet as I have been requested to take some notice of the observations respecting St. Mary's (Paddington) Hospital, in the last number of The Builder, I beg to state that the delay in the building has been caused by the unfortunate death of Mr. Winsland, the contractor for the second portion of the building. The difficulties occasioned by that event are now removed, and the works have been resumed.

I remain, Sir, &c.,

George Russell French.

18th May, 1846.

LIST OF NEW PATENTS

RELATING TO ARCHITECTURE, ENGINEERING, &c. GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

William Spiby, of Carrington, Nottingham, engineer, for improvements in the construction of furnaces used for heating water and other fluids. April 1.

George Lewis, of High Cross-street, Leicester, locksmith, for improvements in the construction of shutters and blinds for windows and doors, and in the construction of doors. April 7.

James Allingham, of Dublin, gent. and James William McGaulay, clerk, of Dublin, aforesaid, for certain improvements in steam engines. April 7.

Joseph Bunnett, of Deptford, engineer, for certain improvements in water-closets, part of which improvements is applicable to other useful purposes. April 15.

William Tutin Haycraft, of Greenwich, doctor of medicine, for improvements in steam engines. April 15.

Charles May, of Ipswich, Suffolk, civil engineer, for improvements in machinery for punching, rivetting, and shearing metal plates. April 15.

Elijah Galloway, of Buckingham-street, Strand, engineer, for improvements in locomotive engines. April 18.

William Heward Bell, of Edmondsley, near Chester-le-street, Durham, for improvements in working coal in coal mines. April 21.

Arthur Phillip Perceval, of East Horsley, Surrey, clerk, for improvements in communicating between places separated by water. April 23.

William Higgs, of Westminster, Middlesex, chemist, for the means of collecting the contents of sewers and drains in cities, towns, and villages, and for treating chemically the same, and applying such contents when so treated to agricultural and other useful purposes. April 28.

Nathan Anthony de Rothschild, of London, merchant, for improvements in heating apartments and buildings. April 28.

William Mather, of Salford, near Manchester, and Colin Mather, of the same place, millwrights and engineers, for improvements in metallic pistons. April 28.

Charles de Bergue, of Arthur-street West, in the city of London, engineer, for improvements in atmospheric railways. April 28.

William Edward Newton, of Chancery-lane, Middlesex, civil engineer, for certain improvements in clocks or time keepers. April 28.

James Timmins Chance, of Handsworth, Stafford, glass manufacturer, and Henry Badger, of West Bromwich, Stafford, glass stainer, for improvements in the manufacture of glass. April 28.

Edward Augustine King, of Warwick-street, Charing-cross, for improvements in the production of magnetic electricity. April 30.

Thomas Lambert, of New Cut, Blackfriars, brass founder, and Charles William Rowley Richards, of Charlotte-street, Blackfriars, engineer, for improvements in cocks for drawing off liquids and gases. April 28.

LICENSE TO VALUE ARTIFICERS' WORK.

Sir,—I shall feel obliged by your informing me whether it is not necessary to take out an appraiser's license, for the valuation and mensuration of artificers' work.

Yours obediently, A. B.

Reading.

*** An Act of Geo. 3 sets forth, not merely that no person shall make a valuation of any dilapidations or repairs wanted, or of the materials and labour *used* or *to be* used in any building, or of any *artificer's work* whatsoever, without an appraiser's license, but that the same shall be made on a stamp, ranging from 2*s.* 6*d.* to 20*s.* This is manifestly unjust in the case of artificers' work, where the surveyor stands simply in the place of the builder, and the bill for so much brickwork, for example, holds precisely the same position as the bill sent out by a draper for so many yards of linen. It appears never to have been acted on. If the bill, when made out, is to appear as a valuation, or as evidence in a court of law, a license should be taken out.

ANCIENT IRON RAILING, FROM FRANCE.

ANCIENT IRON RAILING.

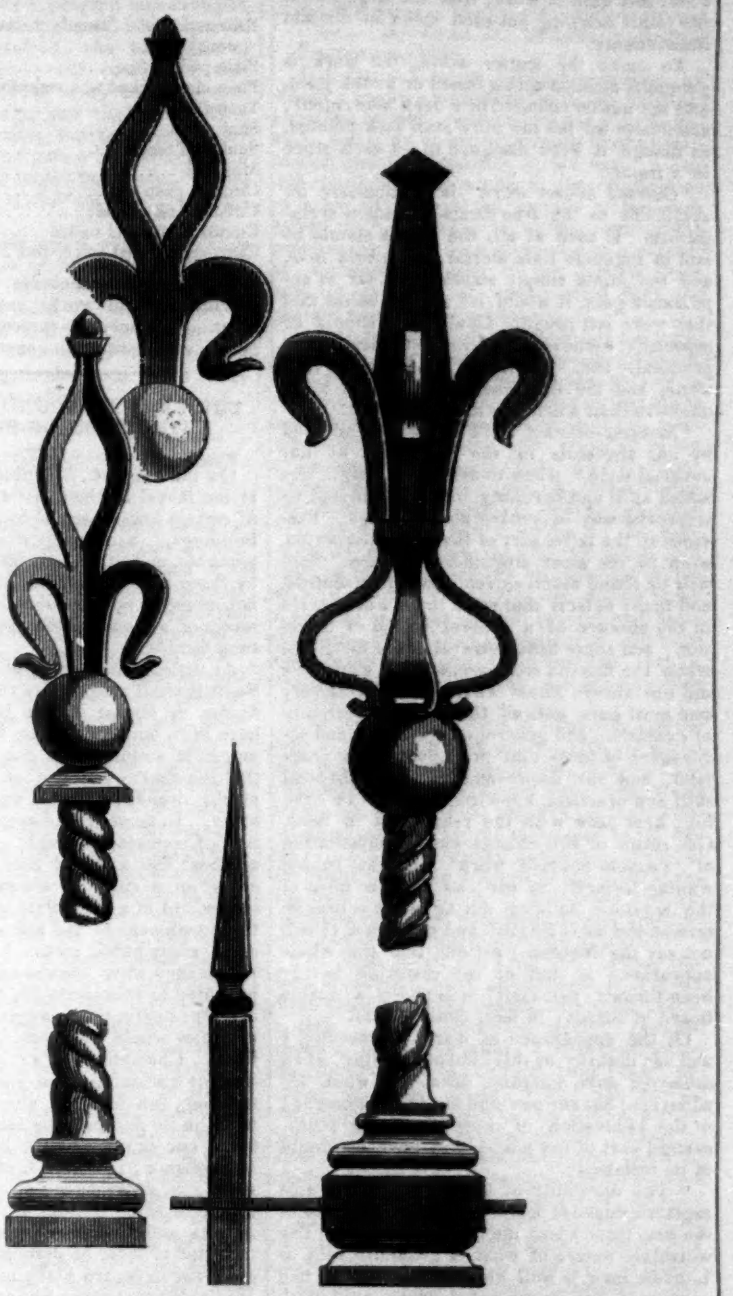
The examples which are occasionally brought to light of ancient Gothic ironwork illustrate, by the beauty of their designs, the very great skill and ability of the old workmen. Unluckily, ancient Gothic ironwork, unless in the form of locks, hinges, or such small matters, is extremely rare; legitimate iron railing is seldom met with; iron gates never; it has been doubted whether, in the early periods, the latter ever existed. Of ancient iron railing, certainly the most interesting example that ever came under my notice is the one I now have the pleasure of illustrating on the opposite page. A length of about 30 feet of this railing was sent over to England from the continent; it formed part of one of those ship-loads of relics, furniture, carving, &c., which are so continually arriving. From the profits realised by such importations, it would appear, that the rage for making new houses the representations of old ones has not at all abated.

In consequence of the ironwork coming over in this way, no information as to the precise locale whence it was brought, can be obtained. From its appearance, it probably formed the railing round an ancient shrine or tomb. The style is certainly French, and the date the commencement of the *Renaissance*. It is at present the property of Mr. Pratt, of Bond-street, who received at the same time an immense number of locks, hinges, &c., of the same ancient period.

Some insight into the forms and designs of ancient ironwork can be obtained, by referring to old illustrated books; one instance I will give: in the "Architectura Curiosa," by Georg Andreä Bœcleri, published in Nuremberg in 1664, a copy of which is in the King's collection, British Museum, a representation of the ancient ironwork round the Schonbrunnen, or beautiful fountain, is given. It appears to have been of most elaborate and elegant design; the tops of the standards are adorned with large bunches of flowers, leaves, &c., falling or bending over the railing. The print is well worth inspection, especially as only the bare frame-work of the railing remains. A view of the fountain is given in Mr. Haghe's first volume of views in Belgium and Germany.

The smaller print represents, one-fourth the real size, some old ironwork remaining in Ashford Church, Kent, belonging to two tombs of the period of James the First. C. J. R.

ANCIENT IRONWORK, ASHFORD CHURCH, KENT.



KENTISH RAGSTONE AS A BUILDING MATERIAL.

At the end of last year, Mr. Whichcord, jun., read a paper on this material, before the Institute of Architects, which was reported at some length in our pages.* This has since been enlarged, and is now published in the shape of a pamphlet,† worthy the attention of our readers.

The finest qualities of stone are, at present, procured at Boughton, near Maidstone, where the quarries have been worked for several centuries. In our previous notice, we described the various layers of stone and hassock‡ in these quarries, and to this we refer. The hassock requires very little labour in dressing. It is sometimes used as an inside lining to walls built with ragstone. "It is usually roughly squared, an operation that should never be neglected, as the crumbling nature of the stone would endanger the security, if the work is exposed to the unequal pressure that would result from the use of irregularly shaped stones. Care should be taken not to place hassock in situations where it is exposed to very great pressure.

For jaumbs, arches, &c., sound bricks are best to be used with it. When the work is of a superior description, and the masonry intended to show inside, as is sometimes the case, the hassock is capable of being worked to a very good surface with close joints; and as it can be procured in blocks of a considerable size, hassock is very applicable as an internal facing.

There is a circular staircase in the gateway of the college (built by Archbishop Courtney) at Maidstone, which has the walls* faced internally with hassock."

"The ragstone must not be used internally, as it 'sweats,' that is, the condensed moisture from the atmosphere is not absorbed at all, but hangs on it in globules, and will show even through two coat plastering.

"Sunk work and moulding upon ragstone should, as much as possible, be avoided, both from the great cost of executing them in so hard a material, and the rapid decay that so much wrought surface causes in this stone. The mediæval builders were well aware of this fact, and while they used ragstone extensively in the more substantial parts of their structures, preferred Caen or even fire or sandstone for the decorated portions. Caen stone is more peculiarly appropriate to be used with ragstone, on account of the small difference of the two materials in colour,† a distinction entirely obliterated by time.

In using '*ragstone ashlar*' great care should be taken to have the stone laid upon its natural bed, as any other proceeding will almost certainly be followed by rapid decay; not but that I believe the stone in its soundest form to be almost beyond the influence of time or the elements, but that from the thinness of the strata, blocks of a large size can seldom be entirely freed from hassock; and even what appears to the eye as blue stone, does, for a considerable distance inward, retain the perishable nature of its enveloping crust. A block of ragstone (if the face be worked) will present, in damp weather, an appearance precisely similar to the heart and sap of timber.

When it is necessary (as in case of copings, &c.) that one bed should be exposed, care should be taken in skiffling the stone to reduce its dimensions as much as possible from the upper side, so as to expose only the soundest portion of the stone to the action of the atmosphere. In some situations, such as mullions, and door and window jaumbs, an unsightly appearance would be produced by too exact an attention to the beds of the stone, as the ashlar is generally too small to range with more than one course of headers. In these cases the old masons seem to have departed from their usual rule, and to have set the blocks on end so as to embrace two or three courses; but as the depth of the block required to work an ordinary jaumb or mullion is not very great, it is not a difficult thing to get the whole thickness required out of the heart of stone, and where this has been done, the work will be found pretty free from decay."

"There are several modes of building with ragstone, either now in use or practised by our ancestors. That most frequently adopted in the better kind of modern buildings is the

* Page 585, Vol. III.

† Weale, Holborn.

‡ A layer of sand which intervenes between the strata of stone, and in some beds, becomes so consolidated as to form a very useful building material.

* The circular turret stair, at the new Homerton church (now erecting from the designs of Mr. A. Ashpitel), is worked in this manner, and may be inspected as (it is believed) the only specimen in the neighbourhood of London.

† The difference is very great at first, but a few years will make them harmonize in colour.

coursed header work, in which headers of an equal height and parallel joints are laid round in a similar manner to brickwork.

There is always something stiff and formal about this kind of work, from the large size of the joints marking out each stone in distinct individuality.

To make the matter worse, the work is generally finished with a raised or a sunk joint, and the mortar coloured of a deep blue colour; sometimes we see the work *even* tuck-pointed, as though it were designed to set each stone in a frame.

'*Coursed header work*' is particularly inapplicable to the free forms of pointed architecture. If used at all, the stones should be laid in ragstone lime mortar, not *chalk lime*, and the joints simply struck. As far as appearance goes, it would be almost better that they were left rough. Chalk lime should be especially eschewed as both æsthetically and practically bad. It will not adhere to the ragstone, and the difference of colour is more offensive than when *blue* mortar is used.

'*Random-coursed work*' was that adopted by our ancestors in the best ages of our national style,* when to beauty of design was added skill and certainty in execution, and an improved way of setting about things. Previous to the latter part of the decorated period, even in the most magnificent edifices, there will be found much slovenliness of execution, and many defects that seem to have originated in the absence of a general system of direction; and some little betrayal of the fact, that when the fine old freemasons set to work they did not always know what to be at. Every one must have noticed the superior certainty of execution, and general completeness and accordance of parts that prevailed a few years later, and the improvements in mechanical skill and practical knowledge appear to have fully kept pace with the refinement in taste. One result of this change was the substitution of 'random-coursed work' for the rubble walling formerly in use; so rude is most of the ragstone building during what is usually termed the early English and decorated (I will not say the Norman) periods, that the whole appearance is that of the materials having been thrown 'pell-mell' in between a double hoard of boards; in fact, concreted in.

Of the appearance of work so executed I will say nothing, as this kind of building, when *connected with antiquity*, does not want for admirers; but any one who has been concerned in the renovation of churches in the south-eastern part of our island, will have no doubt of its instability."

"The durability of buildings erected with ragstone depends mainly upon the qualities of the *lime* from which the mortar is made. The worthless nature of what is generally sold as London lime is well known; but all its bad properties are exaggerated when used with ragstone instead of brick, even grey stone (*i. e.* grey chalk) lime, though greatly superior to the lime burnt from white chalk, is deficient as a cementing substance when used with ragstone.

The durability of ragstone wall work can only be depended upon when executed with mortar made with lime burnt from the ragstone itself; this mortar becomes in the lapse of time so very hard as to form almost one and the same body with the stone. Many buildings may be seen that have been erected a number of years, that retain the original pointing in the joints, fair as when first finished, and so hard as to resist the blow of a chisel."

Mr. Whicheord gives the following average list of prices of stone of various kinds in the quarry, and the rate at which it can be supplied in London alongside the wharf, together with some prices paid for labour upon the stone:

	At quarry.			In London.		
	£.	s.	d.	£.	s.	d.
Rough rag, per ton	0	1	6	0	5	0
Headers, per ton	0	8	0	0	12	6
Rag for breaking, per chord	0	1	6	0	5	0
Rag for lime, per chord ...	0	2	6	0	6	0
Hassock, roughly squared, per chord	0	3	0	0	6	6
Hassock, best, per chord ..	0	4	0	0	7	6
Ashlar, scapled out, per foot cubic	0	2	0	0	2	9
Ashlar, large scantlings....	0	2	6	0	3	3
Lime (per load of 36 bushels)	1	0	0	1	4	0

* By far the best example of ragstone work near London is done in this manner at the new church at Homerton.

It would, in most cases, be cheaper and otherwise preferable to burn the lime in London.

Prices of Labour on Ragstone in Maidstone.

	s.	d.
Beds and joints (usually measured as plain work)	0	8
Plain picked face.....	0	8
Plain close picked in a superior manner ...	0	10
Tooled face	1	4
Sunk work	1	0
Sunk and tooled	1	8
Moulded	2	6
Circular plain	1	0
Circular and tooled.....	1	8
Circular sunk and tooled	2	0
Circular moulded and tooled	3	6

The pamphlet concludes with extracts from specifications of works executed in Kentish ragstone, to serve as precedents, and is altogether well entitled to consideration.

THE LAWS OF SOUND IN THE CONSTRUCTION OF BUILDINGS.

On the 8th inst., Mr. Scott Russell lectured at the Royal Institution "On the application of certain laws of sound to the construction of buildings," a subject of considerable importance, and at present little understood even by those best informed upon it. As we were not present on the occasion, we avail ourselves of a report which appeared in the *Literary Gazette*.

At the commencement of his discourse, Mr. Scott Russell read letters referring to the unfitness of almost all the large rooms which have been built in London for public speaking or public singing. In one it was represented that the chorus singers, on the opposite sides of the orchestra, were unable to hear each other. In another, the speaker had the sensation of speaking through a wet blanket. In another, the walls of the room appeared to carry on a running accompaniment to the singer, but in a discordant key. Referring to these instances of the acknowledged unfitness of so many public rooms for the purpose for which they were constructed, Mr. S. Russell proposed to consider—1st, the nature of these defects; 2ndly, their causes; and 3rdly, what remedies would be most likely to counteract them. Characterising a room designed for the distinct transmission of sound as a great ear-trumpet, the lecturer alleged that, when it failed in its purpose, the failure was attributable to one or more of the following causes:—1, *resonance*; 2, *echo*; 3, *interference*; 4 *repetition*; 5, *disturbance*; 6, *reverberation*. Before addressing himself to the details of these defects and their correction, Mr. S. Russell adverted to what he described as a philosophical error in regard to the undulations of sound. He denied that there was any analogy between the air-wave and the wave caused by dropping a stone into still water. He asserted that the sound-wave was identical with that wave which he had previously described as the *wave of translation*, and maintained that this wave, whether in an elastic or an inelastic fluid, moved with a velocity proportioned to the depth of the fluid in which it was propagated. He contended that there was a great difference between the reflection of sound and that of light, or of elastic bodies; that, when sound impinges at a very acute angle on a flat surface, it is not reflected, but that it rolls along the surface, occasioning what he has termed a *lateral accumulation*. This lateral accumulation causes the defect of *resonance*—it occurs in oblong rooms whose length is disproportioned to their breadth. In these the voice of the speaker soon strikes the walls of the room at the angle before alluded to, and then becomes dissonant. The remedy in such a case is to curve off the end of such a narrow room, as has been done in old churches. With regard to the disturbance occasioned by *echo*, it was presumed that the sound-wave causing this defect might be made to escape by interposing obstacles of an irregular form at the end of the hall or church where it prevailed. The defect of *interference* was said to consist in the effect produced by a voice heard in one of two rooms at right angles with each other, these rooms not being in certain proportions (as that of 32 to 24) to each other. When these proportions were deviated from, the sound occasioned something like what is technically called a *beat*. To this cause Mr. S. Russell referred the difficulty of speaking in a room which was lighted by a high lantern. This evil was to be mitigated by placing the speaker or singer in the angle formed by the two rooms, and by opening doors in those parts of the two rooms at which the wave of lateral accumulation would find the easiest escape. The defect of *repetition* was occasioned by the ordinary phenomena of reflected sounds; and that of *disturbance* by the discordant admixture of other sounds, as that of coughing, &c. In this instance it is the great object of scientific contrivance to catch up and to smother such incongruous noises. *Reverberation* is a dissonance which only occurs in the largest rooms: a striking instance of it is heard in the sound produced by the shutting one of the outer doors of St. Paul's. This noise is not the effect of reflection, but is a case of *lateral accumulation*, occasioned by the sound striking the wall at an angle less than 40°. In conclusion, Mr. S. Russell suggested that the great requisite in rooms destined for the harmonious diffusion of sound was to prevent reflection from walls by small chambers, as the boxes in a theatre; and by arranging the audience so that while no one interferes with the other, their persons may, by the mode of their distribution, prevent many of the defects already noticed. He had suggested a curve, which he described as the *isacoustic curve*, for affording equal facility of hearing to every individual in a large assembly. This curve had been adopted in the arrangements for the congregations in the 450 Free Churches recently built in Scotland; and two other very dissimilar buildings, both celebrated for easy transmission of sound, the Opera House, and the Theatre of the Royal Institution, were arranged in a very near approximation to this curve.

MARKET PLACES.*

When the *Prefet de la Seine* decided upon erecting a new market-hall in Paris, previous to the plans being completed, a commission was sent out to visit various countries, and study the establishments of that kind. It consisted of Messrs. Anger, Inspector-General of Market-halls of Paris; V. Ballard, architect; and A. Husson, chief clerk of the Perfecture de la Seine. Details are given by the commissioners on the markets of London, Manchester, and other cities. While the advantages of our establishments are placed in relief, with the usual urbanity of Frenchmen, yet they could not quite blink the inconvenience of some of our *mediæval* concerns, amongst which Smithfield plays a conspicuous part. "Who should believe," they say, "that this immense metropolis has no exterior market-place for cattle? It is in the midst of the city, a few paces from the Cathedral of St. Paul, where all this host of animals are driven to and sold. Smithfield is the *beau ideal* of disorders in the way of markets—the shifting of cows, bullocks, and horses; the peregrination of herds of sheep and swine; the escaping of half-furious beasts; the howling of dogs, shouting of drivers, screams of frightened passers-by—add to this, that the streets through which this world of beasts pass, are choaked by this throng, dirtied by their excrements, *et cetera*. Whence comes all this inconvenience? It is because the corporation opposes its removal, leaning upon a statute enacted by Edward III.—*five hundred years ago*." Then follow some observations on the immorality of such wholesale slaughter, before the eyes of an uneducated, prone-to-evil mass of the people; which, however, to detail does not fall within the scope of our journal. The strictures which our worthy commissioners pass on Shude-hill Market, Manchester, are interesting and instructive; but we must refer those interested in *states-architecture* to the report itself.—Of Munich, the work says, very truly and tartly, "There, the decorative arts leave nothing to be desired, save the application to useful purposes, viz.: lighting of streets, paving, and market-places."

The report is adorned with elevations and plans. It is thus that, by observation and study *in situ*, the municipality of Paris have given a good example how corporations and nations may learn from each other.

* Official Report on the Public Market-places in England, Belgium, Holland, and Germany.—Rapport sur les Marchés Publics, &c. Paris, 1846, 8vo.

PUBLIC NECESSARIES.

Mr. Editor,—The public is greatly indebted to you, for advocating the great necessity of erecting watering places and closets in the various thoroughfares.

Your contemporaries seem to labour under a false delicacy, in keeping themselves aloof from the consideration of the question. It must, however, be sooner or later carried into effect by the legislature or parochial authorities. Praise, through the medium of the press, is due to Lord Lincoln, late chief Commissioner of Woods, for causing to be erected at Hyde Park Corner, the most convenient and spacious watering-place within the precincts of the metropolis.

With reference to the instructions from the Incorporated Church Building Society, which appeared in The Builder, they seem to have lost sight of one which is essential to the comfort and convenience of the congregation, and that is,—a water-closet.—I am, Sir, &c.,

A Friend to Public Convenience.

Kensington, May 19th, 1846.

INSTITUTION OF CIVIL ENGINEERS.

May 12th and 19th. Sir John Rennie, President, in the chair.—The first of these evenings was entirely occupied by the renewed discussion upon Mr. Williams's "Description of the new works for rendering navigable the upper part of the river Severn." The theory of the oblique weirs was strongly contested, on the ground that, although by its obliquity the obstruction to the stream was more gradual, yet that the vertical obstruction must exist to the extent of the cubic content of the object placed in a channel of given dimensions. After much discussion, in which it was argued that the real position assumed by Mr. Cubitt, in his design for these weirs, had not been perfectly seized by the members, it was shewn that the intention of the works was, to place such weirs in the river as should at all times retain a depth of water sufficient for the navigation, even in the shoalest spots, but that such weirs should be so constructed as to permit of the free passage of the water, without raising it higher in times of freshes or floods than it had been raised in times of similar floods before the construction of such weirs. This it was satisfactorily shewn had been done by the oblique weirs, and that the navigation by means of the lateral rocks enabled a certainty of transport of merchandise to be attained which could not previously be thought of; and at the same time, the drainage of the country had not been at all deteriorated by the regular medium height of the water in the river.

The paper read was "On the combustion of fuel under steam boilers, with a description of Bodmer's fire-grate," by J. G. Bodmer. This paper, after drawing attention to the importance of ensuring a more perfect combustion of the fuel used in furnaces than has hitherto been attained by the ordinary methods, proceeded to give a description of the new fire-grate, by which the author arrived at the desired object.

The main feature of this grate consisted in the ends of the fire-bars being laid in the threads of two parallel endless screws, placed longitudinally beside the fire space, and revolving slowly, so as to move the grate bars gradually forward; the fresh fuel being thus received on a bare surface, and consecutively moved towards that portion, in a state of ignition, a more perfect and effective combustion of the fuel and the gases was stated to take place, than could be obtained by the ordinary method of throwing the fresh fuel on an ignited surface; for in the latter case the gases suddenly developed passed off to a considerable extent through the flues as smoke without being ignited, and a considerable waste of fuel was the consequence, which it was the principal object of this grate to avoid. The fire-bars, on arriving at the further end of the machine, descended on to another parallel pair of endless screws, which had a contrary motion to the upper pair, and thus restored the bars to the front of the grate, where they were again lifted up to the upper screws by means of levers, and were in a position to receive fresh coals, and again to be moved onwards into the fire; a rocking motion was communicated to them by a drunken thread, so as to prevent the spaces from filling with clinkers.

The paper then proceeded to notice the applicability of this grate to all situations in which furnaces were required, and concluded by contending, that with the more perfect combustion that would be insured, a less draught, and, consequently, less fuel would be required, which, it was maintained, was an object of great interest, when it was considered that millions of tons of coal were annually consumed in this country, and that with a daily increasing consumption, the time might ere long arrive when any means by which even a small saving of fuel might be effected would be looked upon as a matter of paramount importance.

Sir John Rennie, president, announced that the first of the series of his soirées would be held June 13th, and that it was his intention this season to repeat them on the evenings of Saturday, June 20th and 27th, and July 4th. The members were requested to co-operate in procuring interesting models and works of art for these interesting meetings.

ILLEGALITY OF VIOLENT EJECTMENTS.

Perry v. Fitzhowe.

A new and interesting point was decided in this case, on Thurday, the 14th instant, by the Court of Queen's Bench. The action was brought for trespass, in breaking and entering the plaintiff's house, and pulling it down; the plaintiff himself and his family being actually in the house at the time. The defendant pleaded his right to pull down the house. Several collateral matters of no consequence were pleaded on both sides; but the real question was, whether, admitting that a party is authorized by law in the other circumstances of any particular case, to demolish a house, he can justify such demolition where the house is in the actual present personal occupation of the owner and his family. Lord Denman, in giving judgment, said the presence of the plaintiff and his family in the house at the time of the demolition, rendered this case different from any which had ever been brought before the court, and there was no express authority upon the point. There was, however, no difficulty in deciding it, by analogy to well-known cases, and to provisions which were already clearly and fully established. It has been long settled, that a horse could not be distrained whilst a man was riding him, and that instruments or tools could not be seized whilst they were in actual use and possession of the owner; and the general ground of these and all such decisions was the imminent danger of a breach of the peace, resulting from seizing the articles in such circumstances. But surely a breach of the peace was much more likely to result from throwing down a house whilst the inhabitants were in it; and it was further evident that such demolition was necessarily dangerous to personal security, and even to human life. The law would not allow any man to assert his rights, or pursue his remedy, at so great a risk of producing such important injuries to the public peace, or the safety of individuals. The court was therefore of opinion, that the justification which the defendant had set up was wholly insufficient, and that the judgment must be given for the plaintiff.—*Times.*

VENTILATION.

The select committee, as to Houses of Parliament, have recommended that further inquiries and experiments should be made, under the direction of the Office of Works, before any plan hitherto proposed be adopted.

At the Central Criminal Court, on the 18th of May, just as the court was about to break up, one of the jury addressed the recorder, and called his attention to the effect of the present plan of ventilating the court by Dr. Reid. He said that the jury had suffered most severely from the currents of cold air that were thrown into their box, and one or two of them had taken severe colds, and all had been very much inconvenienced.

The recorder said he agreed with the jury, that the system was very unsatisfactory. When he sat in the court for any time, he had found his legs and feet completely benumbed, and hardly a session passed without his taking a severe cold. It really seemed as though the worst system of ventilation was adopted at the greatest expense.

New Books.

The History and Description of the Great Western Railway, including its Geology, and the Antiquities of the District; with numerous Views. By John C. Bourne. Bogue, Fleet-street, 1846.

The Great Western Railway is a work, of which a country may justly be proud, whether regarded by itself or in connection with its results, and is an enduring monument of modern power, and the tendency of the age. "The difficulties to be overcome in the construction of a railway," says the preface of the work before us, "and the great capital employed in overcoming them, have given rise to a number of engineering works of the highest class, both as examples of constructive skill and general grandeur of appearance.

It follows, unfortunately, from the nature of the case, that whilst purely architectural structures are placed in open thoroughfares, or places of public resort, the engineering works of a road or railway, stand commonly in some remote district, crossing some secluded valley, or piercing some barren hill. The traveller, indeed, upon a common road, is almost always able, from his comparatively slow progress and from the turnings and windings of the way, to obtain a tolerable view of any great work along its courses; but the straightness of the railway, and the rapidity of the motion upon it, entirely shut out its far greater and more numerous works, and thus some of the most magnificent structures in the kingdom, though crossed daily by thousands, are actually seen by few."

The present publication is intended, in some degree, to supply this defect with regard to the Great Western Railway. It contains fifty illustrations of large size, beautifully drawn on stone, some remarks on the application of certain general principles to railway conveyance, a description of the line, notice of the geology, and an account of the general antiquities. The details of the more curious churches and other specimens of ecclesiastical architecture, are described in an appendix.

The illustrations comprise the various stations, viaducts, bridges, and tunnels, with views of the principal places passed, admirably drawn in tints. The Maidenhead Bridge; the entrance to the Box Tunnel; a view from above the tunnel; some of the views near Bath; entrance to Long Tunnel; and the Bristol station, may be pointed out for special praise. Several plates are devoted to the details of some of the ancient buildings near the line, relative to which the letter-press is fuller than it is in other parts. The appendix says:—"Although it is scarcely worth while to notice all the churches which the railway passes, yet it is surprising how very few there are in which do not occur some remains, interesting either from their great antiquity or their architectural beauty, or from their being indications of customs and religious ceremonies, in many cases peculiar to the Anglican church, and now swept away altogether.

There is also another reason why the details of these ancient structures should be worth attention. Their architects, almost always ecclesiastics, worked by certain rules of construction, to which they rigidly adhered, and which has given to their contemporary works all over the country a peculiar stamp of unity. In the details of their ornaments, indeed, they gave free license to an exuberant fancy; but in general character and disposition, no less than in the proportions and arrangements of the different parts of the whole building, their works are so uniform as at once to mark, to an accustomed eye, the date of their erection within a very few years. It is curious, also, to observe how completely this unity of style is preserved, without producing the least tendency to sameness; and, indeed, in buildings at first sight totally dissimilar, each front, each tower, each window, or each doorway, is so marked, as to be recognised at a glance as belonging to a particular date or style, but so varied in its details and ornaments, as that each in turn draws the attention of the spectator with a feeling, not of sameness, but of novelty and delight."

The book is beautifully printed, on excellent paper, and is altogether a fine work of its class. Next week we shall avail ourselves of some of the architectural information it contains, for the benefit of our readers.

Correspondence.

MODERN BRICKWORK.

SIR,—Finding one of your correspondents, signed "V" in the paper headed "Modern Brickwork," has taken up, what I consider, a just cause of complaint, I beg leave to make some few remarks on the same subject. Myself and others (of the old school) anticipated, at the passing of the new Buildings Act, we should see work better done, instead of which the reverse is the case. Some years ago, an architect in his specifications, would bind the bricklayer that no four courses should extend to 11¼ inches, or 1 foot at farthest; a thing of that kind would be a novelty now, for in many cases you will find four courses to measure 13 in., 13¼ in., and 14 in. Bricks are (or ought to be) made by one standard mould, therefore the evil rests with the slobering fellows who lay them, and the mortar. I say mortar, but should have said muck with a lime-bag shaken over it.

In looking over the new Buildings Act, as it is called, I find that great stress is laid on making buildings secure from fire. Pray who looks to this part of a building, one of the most essential? I cannot see any improvement.

A friend of mine stated to me and others, that at the back of a house in Pelham-crescent, Fulham-road, there is a furnace set in the coach-house, for melting copper. Well knowing the immense heat required for this metal, I venture to say the building is unfit for its purpose, and it is contrary to the meaning of the Act.

Your correspondent "V" states, he saw men carrying up foundations of party-walls, to all appearance two bricks thick, but in reality built of 4½ in. work on each side, leaving 9 in. space between, and this is filled up with small stones, broken bricks, and other rubbish, and no bond for five or six courses. He may well say such work as this is a disgrace.

I am, Sir, &c. C. W.

Fulham, May 11, 1846.

LICHENS ON STONE WORK.

SIR.—One of your constant readers in the country, wishes to know if there is any chemical or other process, by which the lichen on sand-stone structures can be removed, without injuring the surface, or colour of the surface.

Perhaps you will also be kind enough to say, if lichen is a preservative of stone or not, as there appears to be some difference of opinion on this important point. Most instances which have come under my own observation, tend to shew that *it preserves;* however, I incline to think that much depends upon the nature of the stone to which it attaches itself. The surfaces of some sand-stone will not receive lichen, while others will; and this is observed frequently in the same building, and where all the stones used in the structure were out of the same quarry. How is this to be accounted for?

Your attention to the above will oblige your old correspondent, FRANK TYRRELL.

Newcastle-on-Tyne, 16 May, 1846.

CONVERSION OF AREAS.

SIR,—There are two triangular orifices in the side of a reservoir of water, having their bases in the same horizontal line; the sides of the one are twenty-two, twenty-eight, and thirty-four inches respectively; and those of the other, twenty-eight, thirty-two, and thirty-six inches. Now it is intended to build these up, and to form a circular aperture of equal area to them both.

Will you, or any of your numerous correspondents, inform me how to obtain the diameter of the circle, by the method of conversion, of which a specimen was given by your correspondent in No. 168 of THE BUILDER? By so doing, you will much oblige yours, &c.,

A BUILDER.

STAINED GLASS, WESTMINSTER ABBEY.—In reply to several correspondents, we are able to say that the stained glass for the south transept is far advanced, and will shortly be put up. The portions to which one inquirer refers, as having been fixed and taken down again, were placed there only temporarily.

Miscellanea.

RESTORATION OF THE CHURCH OF ST. MARIE, CLIFTON, NOTTS.—This church has been repaired and restored, under the superintendence of Messrs. Cottingham and Son, and was re-opened for divine service a fortnight ago. The piers and arches of the tower, with the arches in the nave abutting thereon, in which the most alarming fissures had taken place, have been restored to their original form, the masonry having been for the most part re-worked, and thorough bonding stones inserted. The disruptions which had taken place, from the weight of the tower crushing the piers, had caused the arches and pillars of the nave to swerve considerably westward: in two instances the pillars were more than a foot out of the upright; all these have been restored to a perpendicular position without the removal of a single stone, by the expansion and contraction of heated bars of iron. The roofs throughout have been restored in oak, with new stone corbels inserted to receive the helves and bearing posts; and the feet of all the principal rafters have been shod with cast iron. The floor of the entire church has been laid with encaustic tile pavement, enriched with armorial bearings. A new carved wood ceiling under the tower, the new seating of the church with low, open benches, a Litany desk, pulpit, font cover, doors to the north porch and tower, staircase, with wrought metal work, are some of the most prominent features of the restoration.

MANCHESTER SCHOOL OF DESIGN.—Mr. Wallis, the late master at this school, has recently issued a farewell letter, detailing the circumstances which led to his resignation. It appears that there was a disagreement with the council and director at Somerset House, respecting the system of instruction. The London council have lately begun to teach the figure simultaneously with the other branches of education, and in a manner which Mr. Wallis considers is more likely to induce bad than good results. He preferred to let the student commence with ornamental drawings, confining the figure to those whose pursuits rendered it an essential advantage, and leaving it till the conclusion of the students course, when it would be taught on sound principles, commencing from the skeleton. Accordingly, and as the Manchester council did not feel inclined to dispense with assistance from Somerset House, Mr. Wallis resigned, a step which has been greatly regretted in Manchester. Mr. Jackson, the active honorary secretary has also seceded. Mr. Wallis had a handsome testimonial presented to him on his retirement. He is now engaged in forming a separate school.

BUILDINGS WITHIN THE BOROUGH OF MANCHESTER.—We learn from Captain Willis's police statistics, that the number of buildings, on the 31st December, 1845, within the borough, were 50,744. He classifies them as follows:—factories, 123; foundries, 43; warehouses and workshops, 3,813; dwelling-houses, 41,606; shops used as dwelling-houses, 4,872; cellar dwellings, 5,385; places of worship, 97; public schools, 106; military barracks, 1; banks, 16; markets, 14; railway stations, 4; gas stations, 5; workhouses, 2; infirmary, hospitals, and dispensaries, 7; night asylum, 1; lock-hospital, 1; penitentiary, 1; public institutions, 27. The cellar dwellings, being only portions of other dwellings, are not included in the gross total.—*Manchester Courier.*

THE ARRANGEMENT OF KITCHENS.—M. Soyer, the *chéf de cuisine* of the Reform Club, is just completing a new work on his art, which contains plans of kitchens, to different dimensions, showing the arrangement of the necessary apparatus, and drawings of stoves and ovens in the kitchen of the Reform Club. This is a department of the architect's pursuit to which less attention has been paid than necessary, and we shall therefore recur to the book at an early opportunity.

FIRES.—The number of fires that have taken place in the metropolis and its suburbs since the commencement of the year, according to the records kept by the brigade authorities, amount to more than 300.

MODERN PICTURES.—Recent sales by auction of the works of living painters have established the fact, that those who encourage modern art with judgment are investing their money very safely, and at good interest.

OXFORD ARCHITECTURAL SOCIETY.—A meeting was held in the Society's Room on Wednesday evening, May 6th, the Rev. the President in the chair. After the election of new members, the report of the committee was read. It related chiefly to the progress of the works at Dorchester church, and announced the gratifying fact, that some members of Oriel College had undertaken the restoration of the west end of the south aisle, including the elegant buttress at the south-west angle, with the adjoining porch and window. To this purpose they have determined to apply the proceeds of a terminal subscription, amounting to about 80*l.* per annum. Mention was also made of an offering of gratitude from the junior members of Lincoln College to their chapel, in the shape of a handsome brass eagle-desk, of the value of nearly 80*l.* The design for this praiseworthy gift was laid before the Society. Fifty copies of an engraving of the ancient Guestern Hall, at Worcester, had, it appeared, been received from the Rev. W. Digby, Canon of Worcester, and distributed among the most active members of the society. They might, it was hoped, by making that interesting building better known, promote its restoration. Mr. Freeman, of Trinity College, then read a paper "on the Antiquities of Purton Church, Wilts, with Notices of some neighbouring Churches."

SALE OF ST. BENET FINK.—At the beginning of the week, Mr. Pullen sold by public auction the church of St. Benet Fink, Threadneedle-street. The six stone columns with carved capitals, placed along the two sides of the building, and supporting the roof, realised 11*l.* 18*s.* 6*d.*; and the altar windows at the east end, having in the centre a coat of arms in stained glass, with the date 1695, brought 2*l.*

MEETINGS OF SCIENTIFIC BODIES

During the ensuing Week.

MONDAY, May 25.—British Architects, 76, Grosvenor-street, 6 P.M; Geographical, 3, Waterloo-place (anniversary), 1 P.M.; Linnæan, Soho-square (anniversary), 1 P.M.

TUESDAY, 26.—Civil Engineers, 25, Great George-street, 8 P.M.; Syro-Egyptian, 71, Mortimer-street, Cavendish-square, 8 P.M.

WEDNESDAY, 27.—Society of Arts, Adelphi, 8 P.M.

THURSDAY, 28.—Royal, Somerset House, 8½ P.M.; Antiquaries, Somerset House, 8 P.M.

FRIDAY, 29.—Royal Institution, Albemarle-street, 8½ P.M.

NOTICES OF CONTRACTS.

[We are compelled, by the interference of the Stamp Office, to omit the names of the parties to whom tenders, &c. are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent Garden.]

For the erection of a tower for a lighthouse on the Heugh, or Headland, at Hartlepool.

For lighting the City of Bristol with gas for seven years, from 29th September, 1847.

For the erection of National Schools at Great Waltham, near Chelmsford.

For the erection of the new workhouse at Ashbourne (extension of time).

For the erection of new works for the Carliale Gas Light and Coke Company, in Borough Mile Field.

For the erection of a station-house at Huddersfield, for the Huddersfield and Manchester Railway.

For all or any of the several requisite works in the erection of a church at Heeley.

For taking down and erecting a farm-house and farm-buildings in Corton, Suffolk.

For erecting a lodge to the cemetery at Coventry.

For the erection of several lodges on the Nottingham and Lincoln Railway.

For 300 tons of the best Hartshill stone.

For the masons', carpenters', slaters', plasterers' and plumbers' works of a free church Manse, to be erected at Redcastle, near Inverness.

For repairing, and keeping in repair, the Tongue-road, in the county of Sutherland.

For the erection of part of an extensive set of office-houses on the farm of Ardintrive, near Oban.

For laying down about 850 yards of 5-inch cast-iron gas-main for the Teignmouth Improvements Commissioners, and for relaying another main of about same length.

For the construction of sewers in Finch-lane, Nicholas-lane, and Angel-court, City; also for cleansing and repairing City sewers for three years.

For the erection of a new bridge over Calf Lake, Burn, in the parish of Lochmaben.

For supplying the trustees for repairing, lighting, &c. Grosvenor-place, and the squares and streets adjacent, with flints, stone, gravel, granite, &c.

For erecting a gas-work for Inverleithen, County Peebles.

For executing repairs on the stone pier at Newhaven.

For finishing ten third-rate houses at Islington.

For supplying the Committee for Paving, &c. the parishes of St. Giles's-in-the-Field, and St. George's, Bloomsbury, with granite, gas-posts, copper lanterns, fittings, &c.

For the iron-work of a condensor and tar-tank for the Commercial Gas-light and Coke Works, Stepney.

For building a new workhouse at Kensington (extension of time.

COMPETITION.

The directors of the Birmingham Church of England Cemetery will give a premium of twenty guineas for the best design, and one of ten guineas for the second best design, for laying out and ornamenting the grounds at Warstone, and for the erection of a suitable chapel, entrance-lodge, and other buildings thereon, for the purposes of a cemetery. Buildings in the Saxon or Gothic style of church architecture preferred.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Little Bentley, Essex: 1,500 very capital larch, and 300 ash trees.

At Thaxted, Essex: 225 oak trees, and 400 useful seconds.

At Stanated, Mountfitchet, Essex: 270 oak trees and saplings; 100 ash, elm, poplar, &c.

At Hadstock, near Linton: 300 capital oak trees, with topwood.

At Didlington, near Stoke Ferry: an assortment of ash, elm, oak, alder, poplar, willow, &c.

At North Burlingham, near Blofield, Norfolk: a quantity of superior larch and spruce poles, ash and beech timbers, poplars, willows, &c.

At Shortgrove Park, Newport, Essex: an assortment of ash, oak, elm, birch, maple, &c.

At Weeley Hall, near Ipswich: a large quantity of oak trees, seconds, bavins, poles, &c.

At Beaumont, near Thorpe: a very extensive and first-rate bankrupt builder's stock in trade.

At Steeple Bumpstead: 60 large oak, 100 elm, 100 ash trees, &c.

At Amberden Hall, Debden, Essex: 232 oak, 35 ash trees, and 130 oak saplings.

At the estate of Inverary, Argyleshire: a large quantity of growing and cut timber.

At Ickworth Park, Suffolk: about 200 oak trees, with poles, &c.

At Doncaster: the stock in trade of extensive marble and stone works.

At Ely: a large quantity of excellent building materials.

At Charles-street, Long-acre: the valuable building materials of six houses, &c.

TO CORRESPONDENTS.

"*W. C.*"—Are any of the new buildings, St. Augustine's College, worthy engraving?

"*E. J. N.*"—The method of taking out quantities from drawings can scarcely be taught by a book. Obtain verbal instruction from a qualified person.

"*W. Burgess.*"—The model has been seen by a number of persons. We will take an opportunity to send it to one of the Archæological Meetings, but cannot promise further.

"*Transparent Window Blinds.*"—A correspondent asks, "What is the process of painting transparencies for window blinds; I mean the preparation of the canvas, what colours are used, how mixed, and whether the whole is made transparent *afterwards* by varnish; also whether I should have to pay excise duty for painting a blind, *as oiled canvas?*"

"*Worms in Wood.*"—A correspondent wishes to know how to destroy worms in a piece of furniture. Whale oil, it is said, has been applied with success.

"*J. X. H.*" (No. 16), will find notice of the tables, p. 214, *ante*.

"*R. S.*"—Unless the building be "insulated," according to the meaning of the Act, a bow window of timber will not be permitted, even if covered with metal or slate.

"*R. F.*"—Windows should not be permitted in the wall, unless the owner of the shop will give an undertaking to "R. F." to close them up at any time on receiving notice to do so.

"*Alpha.*"—Our old friend's communication reached us too late for present number. We will give it consideration.

"*H. W. D.*" declined.

"*R. N. W.*" "ϕ." next week.

Received.—"J. A.," "R. T.," "S. W.," "The History and Prospects of the Railway System, by Samuel Sidney." (Edmonds, 154, Strand, 1846); "Health of Towns, as influenced by Defective Cleansing and Drainage, by W. A. Guy, M.B." (Renshaw, Strand, 1846).

ADVERTISEMENTS.

PORTLAND CEMENT does not vegetate in damp situations, requires no colouring, is perfectly hydraulic, and resists the action of frost. The price is now considerably reduced, and the public are thereby enabled to avail themselves of these distinct advantages.

Manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster; and sold at their warehouses—Earl-street, Blackfriars; Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Albion Wharf, Deptford-bridge; at Seel-street, Liverpool; and Salmon and Co.'s, Dublin.

QUICK DISPOSAL OF HOUSE AND LANDED PROPERTY.

BY means of an Extensive and Classified Buying Connection, to whom we can immediately offer what may be placed in our hands, we effect Sales of Property with the greatest facility, and as we make no charge until a sale is effected, it is to the interest of all proprietors of house and landed property, desirous of selling, to register such with us, BECKWITH and SALMON, Auctioneers and Estate Agents, 25, Bucklersbury.

By Her Majesty's Royal Letters Patent

BAILLIE'S

PATENT ROUNDED RIM LOCKS.

WITH SECRET AND SECURE FIXINGS.

THIS CHEAP and USEFUL ARTICLE, obviating the unsightly appearance and insecurity of the common rim lock, can be obtained of any respectable ironmonger in town or country, or from the sole manufacturer, Mr. EDWARD WRIGHT, Wolverhampton.

TO ARCHITECTS AND BUILDERS.

COLLINGE'S PATENT HINGES.—Sole Manufactory, 64, BRIDGE-ROAD, LAMBETH, where a great variety are always on view, for Church, Park, Coach-house, and all other Doors and Gates, of large or small dimensions, a gate of a ton in weight moving with these hinges as easily as a wicket; they are also admirably adapted for drawing-rooms, being highly ornamental, and folding-doors fitted with them may be removed and replaced in an instant. Rising and spring Hinges, on the most improved principle, and very superior Fastenings for exterior Gates, at moderate prices. To be seen at Charles Collinge and Co.'s Patent Axletree, Sugar-mill and Spherical-hinge Manufactory, 64, Bridge-road, Lambeth.

PATENT WINDOW BLINDS.

TYLOR and PACE manufacture every description of WINDOW BLINDS entirely upon their own premises, by the aid of steam machinery, insuring the best materials and workmanship, at the lowest cost. Patent metallic gauze and perforated Zinc Blinds, in mahogany frames, at 1s. 6d. per square foot; ditto, in metal frames, 1s. 2d. per square foot. A large and choice assortment of Transparencies, mounted, from 10s.; Holland Blinds, on plain or spring rollers, Outside Shades, Venetian and Sun Blinds of every description.

TYLOR and PACE'S Show-rooms, 53, Cornhill, entrances St. Peter's-alley.

HERRING'S PATENT WINDOW for hanging the Sashes, whereby they may be instantly disconnected from the Frames, without removing the Beading. It is now being applied in Palaces, Castles, Mansions, first-rate Houses, Villas, &c. It is universally approved and adopted by every Architect that has seen it. Builders in the Country will have a full-sized Window forwarded on receiving an order and reference, and taken back if returned within eight days free. To be seen daily. Licences and other particulars had of the Patentee, 14, Kingsgate-street, London.

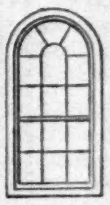
This invention is exceedingly simple, increases the cost but slightly, and appears to answer the purpose well.—BUILDER, 28th February.

A Premium of 5*l.* will be given to the first fitter-up of a first-rate House with this Patent, and in proportion for second, third, and fourth-rate Houses.—March 20, 1846.

TO BUILDERS, MARKET GARDENERS, AND OTHERS.—1¼ INCH OVOLO SASHES

MADE and GLAZED with CROWN GLASS at 9½d. per foot superficial; ditto, with Frames and Pulleys to hang double, and Sunk Oak Sills, at 1s. 2d. per foot superficial; Lap Lights for hot-houses, conservatories, &c., made and glazed at 8½d. per foot superficial.—Address, W. PATTEN and Co. 20, Old Fish-street, Doctors' Commons, London; sole manufacturers of Anti-Corrosive and Mineral Paint.

SHOP FRONTS, SASHES AND FRAMES, DOORS, &c. MADE FOR THE TRADE.



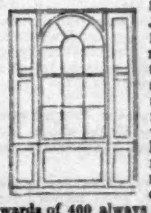
JOHNSON & PASK,
1, AMWELL STREET,
Clerkenwell,

Beg to state that they continue to make Sashes, glazed complete, at 10½d. per foot; also, Shop Fronts to any design, and with the best British plate-glass. Every description of joinery on the lowest terms, and of the best materials and workmanship.

A full list of prices forwarded by return of post to any part of the country.

TO BUILDERS AND CARPENTERS.

CHAS. W. WATERLOW,



Sash Maker and Joiner to the trade, 121, Bunhill-row, returns thanks for the liberal patronage awarded him, and begs to announce he has devoted a portion of his extensive premises to the sale of ready-made Doors, of which he has upwards of 400 always on view, and a variety of Sashes and Frames on the lowest scale of prices. Full lists may be had on application at the counting-house; if by letter, enclose postage stamp.—N.B. Glazed goods securely packed for the country.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

SASHES primed, glazed, and sent to any part of London at 6d. per foot.

BUILDERS, PAINTERS, GLAZIERS, and others, supplied with every article used in the trade upon the best wholesale terms.

FOREIGN SHEET 5d. per foot.
BRITISH CROWN 5d. per foot.

Coloured and Ornamental Glass, Flatted Crown, and Sheet Plate, for Shop fronts, Shew-cases, &c. The largest stock of Cheap Glass in London for HORTICULTURAL PURPOSES.

Dry and Good Colours of the best quality; Brushes Dryers, and every article used in the Trade Warranted.

VARNISHES and GENUINE WHITE LEAD; MILLED LEAD IN SHEETS 22s. per cwt.; Lead Pipe 23s. per cwt. Pumps, Water-closets, Basins, Brass-work, and all materials used by Plumbers.

For complete lists priced.—Address to R. COGAN, WINDOW GLASS, LEAD, and COLOUR WAREHOUSE, 5, Princes-street, Leicester-square, London.

WINDOW GLASS, LEAD, VARNISH, and COLOUR MANUFACTORY.—Crown Window Glass, in squares under two feet, 4½d. per foot; glazing, 5d. per foot; sheet glass, 4d. per foot; best white lead, 26s.; seconds, 24s.; thirds, 22s. per cwt.; linseed oil, 2s. 2d.; boiled oil, 2s. 6d.; turpentine, 3s. 9d.; fine oak varnish, 10s.; carriage, 12s.; copal, 14s.; body copal, 20s.; gold size, 10s.; paper varnish, 10s.; linseed oil putty, 7s. 6d. per cwt. per firkin; patent dryers, 42s.; black paint, 28s.; lead colour, 24s.; Oxford ochre, 42s. per cwt.; best pan water-closet, 34s. complete; ¾-brass cocks, 2s. 8d. each. Milled sheet lead, patent pipe, beer-machines, tapping-cocks, and brushes and colour of every description. Thomas Millington being the manufacturer, can supply a much better article than most other houses. Address, THOMAS MILLINGTON, 97, Bishopsgate-street Without, London.—Established upwards of 90 years.

TO BUILDERS AND CARPENTERS.

A Considerable saving will be effected in the purchase of IRONMONGERY, by applying at F. R. WILLIAMSON'S Wholesale Warehouse, No. 35, Chiswell-street, Finsbury-square, near Whitbread's Brewery

Best Patent Cut Clasp.

3d.	4d.	6d.	10d.	20d.
5d.	7d.	9d.	1s. 6d.	2s. per 1000.

Best Sheet Cut Floor Brads 16s. per cwt.
Best Town Glue 46s. per cwt. Do. Scotch 82s. per cwt.

Best Patent Sash Line.

1	2	3	4	5	6
4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	17s. per gross.

Elliptic Stoves, 3d. per inch. Registers, 6½d., 7d., 9d. per inch. Self-acting Kitchen Ranges with Oven and Back Boiler, Wrought Bars and Bright Fittings.

3 ft., 3*l.* 3s.	3 ft. 6 in., 3*l.* 12s. 6d.	4 ft., 4*l.*

Lists of Prices had on application at the Warehouse; if by letter prepaid, inclosing postage stamp.

TO ARCHITECTS, BUILDERS, &c.

RHENLY & Co., WHOLESALE IRONMONGERS, and MANUFACTURERS of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.

Strong Self-acting Kitchen-Ranges, with back Boiler and Oven, and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
3*l.* 6s.	3*l.* 13s.	3*l.* 16s.	4*l.*	4*l.* 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
5*l.*	5*l.* 15s.	6*l.* 5s.	6*l.* 10s.	7*l.*

Best Register Stoves, at 7d., 6d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

BRIGHT REGISTER STOVES, with Steel and Ormolu Ornaments, for 4*l.* 15s., cast at GREEN and CONSTABLES, 36, King William-street, five doors from London-bridge.

HOT WATER APPARATUS.—The attention of architects, builders, and others is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, staircases, conservatories, forcing and greenhouses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

PATENT WOOD CARVING OFFICE.

THE Proprietors of the Patent Method of producing Wood Carvings beg to announce the removal of their Offices from No. 5, Henrietta-street, Covent Garden, to No. 444, West Strand, where specimens in every variety may be seen.

GRAINING AND WRITING FOR THE TRADE.

MESSRS. WOOD AND COMPANY, Grainers and Writers to the Trade only, by contract, measure, or otherwise.

Offices, 11, St. Benet-place, Gracechurch-street, City, and 62, Waterloo Bridge-road. All letters post paid.

N.B. Workmen sent to any part of the kingdom.

ENCAUSTIC, VENETIAN, and other PATENT TILES and MOSAIC PAVEMENTS may be purchased at MINTON and Co.'s warehouse, 9, Albion-place, Surrey side of Blackfriars-bridge.—Wyatt, Parker, and Co., Agents. The above tiles have lately been considerably reduced in price.

N.B. An assortment of plain and ornamental door furniture, slabs, and tiles for fire-places, &c.

DAVEY'S PATENT SLATE RIDGES and HIPS are very superior in appearance to lead, as well as more durable and much cheaper, and are admitted to be the most valuable articles for the purpose hitherto invented. They consist of two side pieces and a roll, either united together to form one solid piece, or in separate parts, and in lengths of from four to six feet. The roll is made of various sizes, perfectly round, and in the strongest way of the slate. They may be purchased of the patentee, W. DAVEY, Broad Quay, Bath, or of any slate dealer in London or the country. Parties ordering a cargo of roofing slates may procure these ridges at the cheapest rate from Mr. JAMES WYATT, Port Penrhyn, Bangor (where they are manufactured), of whom and of the patentee further particulars and prices may be obtained.—Be particular to order DAVEY'S Patent.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies, and elsewhere.

BRICK MACHINE.

JONES'S PATENT MACHINE is acknowledged by old-experienced workmen to turn out far superior Bricks to what can possibly be done by hand. Expedition and cheapness guaranteed. They are moulded stiffer, put in the walls at once to dry, and will bear two high a day. So that nearly double the quantity is in process of drying, and consequently less covering required. Contracts for brick-making, by machines, entered into, and licences granted.—Apply to EDW. JONES, Queen's Wharf, King's-road, Camden Town.

CAEN STONE.

LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

MARBLE CHIMNEY PIECES.—The WESTMINSTER MARBLE COMPANY have this spring, restocked their show-rooms with a great variety of chimney-pieces of quite a new design, with the best quality of Italian Marbles selected expressly for their works, and will be sold to builders at such reduced prices that they will realize a great saving by forwarding their orders to the Westminster Marble Works. An unabated zeal will be maintained to continue the patronage so liberally shown to this Establishment.—Address, Earl-street, Millbank.

TO ARCHITECTS, BUILDERS, AND THE PUBLIC IN GENERAL.

C. DEBAUFER and SON beg to call the attention of architects, builders, &c., to their general assortment of Gas Lamps, Pendants, Hydraulic sliding Pendants, Gas Brackets, Pillars, and every article connected with gas apparatus, at their Manufactory and their Rooms, 10 and 11, Creed-lane, Ludgate-street.—A liberal discount allowed to architects and builders.

PAVING, 2s. 9d. PER SQUARE YARD Basements, Foot walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 15, WHARF-ROAD, CITY-ROAD.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen at 27s. 6d. per ton.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorised CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced. I. FARRELL, Secretary.

Stangate, near Westminster Bridge, Jan., 1845. Seyssel Asphalte Company.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

STEPHENS'S LIQUID OAK, MAHOGANY, ROSE, and SATIN WOOD STAINS, for Staining various sorts of Inferior Woods, so as to give them the appearance and character of the more costly and ornamental kinds; also for reviving the natural colour of Wood Carvings and Panellings, and other ornamental Wood Work, when such has become faded from age or other causes.

IN THE BUILDING AND DECORATING NEW CHURCHES, where it is desirable to give to the cheaper kind of Woods the appearance of Antique Oak, or to make Deal assume the character of Oak Panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these Stains will be found more effective than any means hitherto employed.

IN OLD MANSIONS AND HALLS, where the Wood Carvings and Panellings have faded, the applications of these Stains will be found to revive and bring back the rich natural colour, and which colour may be varied from the lighter to the deeper shades of the most Antique Oak.

The BIRCH WOOD, which has a fine natural grain, with little colour, is particularly suited to the application of these Stains; and the appearance which it assumes after Staining is so near that of the natural wood, that is is only when the grain and colour of the latter is particularly fine that it is preferred. Beech, Birch, Elm, Ash, and other Woods, English and Foreign, receive the Stains and produce various imitations.

For the exposed Timbers of the inside of the ROOFS of CHURCHES, for which north country Timbers and Deals are generally used, by brushing them over with the Stain, which operation is very rapidly, and of course economically, effected, the appearance of an Oaken Roof will be produced. For colouring the backs of the Seats, Pews, the fronts of Galleries, the Pulpit, &c., it is equally advantageous.

Prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street; at the Office of "The Builder," 2, York-street, Covent-garden, and in Manchester, at CRAKE'S MARBLE WORKS, Garratt-bridge, David-street, at which places specimens of their application may be seen.

HEAL & SON'S LIST OF BEDDING.

CONTAINING a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of bedding. Sent free by post, on application to their establishment, the largest in London, exclusively for the manufacture and sale of bedding (no bedsteads or other furniture being kept).

HEAL and SON, Feather Dressers and Bedding Manufacturers, 196 (opposite the Chapel), TottenhamCourt Road.

FRENCH PAPER HANGINGS.—All the Newest and most Splendid Patterns at the Reduced Duty of 2d. per yard, on view; and orders taken at MARKS and Co.'s Warehouse, 29, Princes-street, Leicester-square. Carved Leather and Carton Pierre Ornaments, and Utrecht Velvets, at the same Reduced Duties.

PAPER HANGINGS.

BUILDERS, ARCHITECTS, SURVEYORS, and Others, may select from a Stock of 80,000 Pieces of Paper Hangings, always ready, in decorations, Golds, Flocks, Satins, Damasks, Hand and other Marbles, Oaks, &c. &c., at unprecedented low prices, terms cash, at W. LESCHALLAS'S, 32, Budge-row, corner of Size-lane, City.

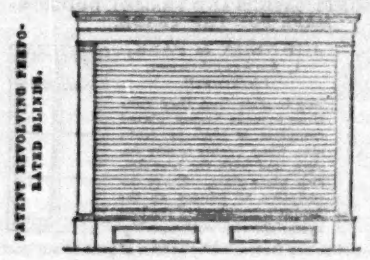
SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS,

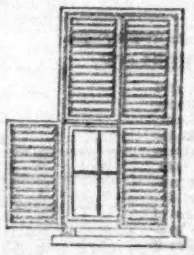
Manufactory, 96, Regent-street, and 131, Chancery-lane.

THE Patentee can confidently recommend these Shutters both for security and durability. The edges being sheathed with IRON, and the cost little more than common shutters, their construction so simple, that the largest establishment can be opened or closed in a few moments with the greatest possible ease without the use of machinery. Their superiority over other Revolving Shutters consists in being made without metal hinges, consequently cannot rust, buckle, or get out of order, and are equally safe. W. SNOXELL will have much pleasure in giving reference to numerous establishments where they are fixed, aving on all occasions given the greatest satisfaction.

IMPROVED PATENT CONVEX IRON REVOLVING SAFETY SHUTTERS.

PATENT SAFETY IRON SLIDING SHUTTERS.





The attention of Architects, Builders, Blind Makers, and the Trade generally, is particularly requested to the IMPORTANT patented IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old Street, London; or at the Licensees.

Engravings and Prospectuses may be had at the above address, or will be forwarded on application.

The great importance of STRENGTH and STIFFNESS in the Laths of REVOLVING IRON SHUTTERS, when required for SECURITY, is so obvious, that it is only necessary to point out the fact that the PATENT CONVEX LATHS ARE 12 TIMES STRONGER THAN THE ORDINARY FLAT LATHS (as shewn by the engravings and prospectus), to ensure their general adoption.

REVOLVING IRON SHUTTERS MADE OF THE COMMON FLAT LATHS, AT A VERY CONSIDERABLE REDUCTION OF PRICE.

CAUTION.—The Patentees beg to caution all persons against Making or Using BENT LATHS for REVOLVING IRON SAFETY SHUTTERS, so as to obtain increased strength or stiffness; as they thereby render themselves liable to legal proceedings for infringing this patent.

Licenses Granted.

REDUCTION IN THE PRICE OF

BUNNETT AND CORPE'S

PATENT REVOLVING IRON SHUTTERS.

THE validity of this Patent being completely established, the Patentees have much pleasure in stating that the very extensive demand, and the employment of improved machinery in the manufacture, have given them an opportunity (of which they gratefully avail themselves) of making a considerable reduction in the price of this well-known and tried invention, thereby rendering them the cheapest as well as the best iron shutters in use. Every improvement suggested by practical skill and most extensive application has been adopted, and no effective REVOLVING IRON SHUTTER can be constructed without infringing B. and C.'s patent. The worm and wheel, as patented by them, being the only safe, durable, and efficient mode of raising and lowering such shutters, these shutters can be applied horizontally, either above or below the window, or vertically, as introduced by BUNNETT and CORPE, in some of the largest establishments: they are made with bent or corrugated laths, if required.

BUNNETT and CORPE also manufacture

REVOLVING WOOD SHUTTERS,

with their patent raising machinery, or with counterbalance weights, and with proper metallic hinges, without which no shutters can be safe or durable.

BUNNETT and CORPE are likewise Patentees and Manufacturers of METALLIC SASH-BARS, MOULDINGS, &c., IN BRASS, COPPER, OR ZINC, FOR SHOP FRONTS, WINDOWS, SKYLIGHTS, AND VARIOUS OTHER PURPOSES.

Shop Fronts fitted in a superior manner with Iron Shutters, Patent Brass or Zinc Sashes, Moulded Engraved Stall Board Plates, best Plate Glass, and internal Brass Fittings of all kinds, on the most advantageous terms. Estimates given and contracts taken in Town or Country.—All kinds of metal works executed to any design. Metal Drawing, Rolling, and Stamping for the Trade. OFFICE, 26, LOMBARD-STREET, LONDON. WORKS, at DEPTFORD, KENT.

FINE ARTS.

By Her Majesty's Royal Letters Patent.

LORIMIER'S TRANSPARENT PLANES for Perspective Drawing; BENJAMIN WEST, Patentee.

"This Instrument will enable Artists and others to make any Drawing, whether from Nature or Models, in perfectly true perspective, so that a likeness or landscape may be taken in a few minutes absolutely perfect. It is used by her Majesty's Royal Sappers and Miners, Chatham. To Travellers it would be found serviceable, since it can be employed without the knowledge of drawing."—*Art Union.*

Price 18s. and 26s. Apply for Agents to BENJAMIN WEST, 2, St. James's-walk, Clerkenwell.—Sold by BARRITT and Co., 173, Fleet-street, London; GRIFFIN and Co., Glasgow, and by all Fancy Stationers, &c.

HENDRY and GLOVER, IRON-FOUNDERS, beg to inform their customers that they have removed their Foundry (from Smart's-buildings) to CHARLES-STREET and 168, DRURY-LANE, where they have adopted every improvement to enable them to compete successfully in quality, price, and punctuality. They have also an extensive and well-arranged stock of patterns for every description of Castings.

IRON BRIDGES, PIERS, &c.

*** For the Numerical Explanation of DREDGE'S PRINCIPLE, see the "Mechanics' Magazine," No. 1172.

THIS system removes from the Arch to the horizonal line the horizontal force of the whole Bridge, which makes the roadway as powerful as the arch itself, and the arch, with half the material, more than double its original power. The pressure on the key-stone of the arch is the horizontal force of a Bridge, which acts directly on that point as a dead load of self-destruction; and it has thrown down, within the last eighteen months, nearly sixty arches of Viaducts and Bridges.

EXAMPLE:—The Menai Bridge, whose depth is 1-14th of its length, and the suspended weight 800 tons, its horizontal force is 2,800 tons of self-destruction on the centre; hence it would require but a small portion of the material and cost of that bridge to construct one over the Menai Straits on this plan, that would possess far greater power and stability than the present structure.

This principle has been fully tested nearly ten years, by the construction of fifteen public bridges for the Government and others in Great Britain. It is also established in India.

Bath, 3rd April, 1846.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,

STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,

LEWIS C. HERTSLET, Clerk.